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ORAL REHYDRATION AND IMMUNIZATION
THE ROLE OF THE RURAL HEALTH PROMOTER
GUATEMALA

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ACRONYMS

AID	=	Agency for International Development
CRS	=	Catholic Relief Services
DGSS	=	Dirección General de Servicios de Salud (General Directorate of Health Services, Ministry of Health)
DIGESA	=	the agricultural extension agency of the Ministry of Agriculture
EPI	=	Expanded Program of Immunization
INCAP	=	Instituto de Nutrición de Centro América y Panamá (Nutrition Institute of Central America and Panama)
KAP	=	knowledge, attitudes and practices
MOH	=	Ministry of Health
MSPAS	=	Ministerio de Salud Pública y Asistencia Social (Ministry of Public Health and Social Assistance)
ORS	=	oral rehydration solution/salts
ORT	=	oral rehydration therapy
PAHO	=	Panamerican Health Organization
PRINAPS	=	Proyecto de Investigación de Adiestramiento de Promotores Rurales de Salud (Rural Health Promoter Training Research Project)
SD	=	standard deviation
SINAPS	=	Sistema Integrado de Nutrición y Atención Primaria de Salud (Integrated System of Nutrition and Primary Health Care)
UDRI	=	Unidad de Desarrollo Rural Integral (Integrated Rural-Development Unit)
USAID	=	United States Agency for International Development
WFP	=	World Food Program
WHO	=	World Health Organization

I. EXECUTIVE SUMMARY¹

Case studies were performed in eight rural communities in four health districts across the country in an effort to help determine to what extent the Ministry of Health's "cascade" strategy of training in ORT and EPI has been effective in reaching the community level. The primary focus of this study has been on evaluating the level of knowledge of rural health promoters in these two program areas, and their effectiveness in serving as a vital link in the communications network between district health services and the community.

Field investigation consisted of study teams spending one week in each of the selected communities. Each team included at least one member from the local MOH health district or area. In order to obtain information on local attitudes and practices with respect to ORT and EPI, data were obtained through the use of ethnographic study techniques such as participant observation, individual interview, focus-group discussions and archive review. Data on level of knowledge amongst promoters were obtained through the administration of written tests.

A. Results of Field Investigation

Without exception, field investigators reported having observed very good relations between promoters and community members in all eight study communities, in spite of the fact that communities commonly had little say in the promoter selection process. In general, residents in these communities are very much cognizant of the strict resource limitations under which their promoters operate, and voiced unanimous support and approval of their efforts. The level of collaboration and support between promoters, midwives and district health personnel, however, was reported to be far less close, with the notable exception of the case of San Lorenzo, San Marcos.

Formal, full-scale training events were reported to have been held in only one of the four health districts in the study sample within the past few years. Promoters who have joined the ranks in the interim have received their initial instruction and orientation through short annual retraining courses. In general, field investigators felt that the orientation of these courses has been focused more on curative than preventive aspects of health care. Training methodology was reported to consist

¹ See Appendices A - F for scope of work, map of study sites, calendar of field activities, list of study participants, and English-language translations of the field guides provided to each study team. Copies of the original Spanish-language written tests are presented in Appendices G and H, with the English translation of each question included in the corresponding discussion of results.

primarily of lectures, with little time dedicated to hands-on demonstrations or practice.

The availability of promoter training manuals was found to vary by district as well. In one district, promoters were reported to have received no written reference materials whatsoever; in that district where initial training was held this past summer, promoters received copies of obsolete training modules, which are inconsistent in some important ways with the new manuals published in late 1987. In a third study district, where these new manuals have been distributed, field personnel discovered that the level of presentation of the material presents difficulty for the majority of promoters who are non-native Spanish speakers with very limited schooling, serving as an obstacle to their effective use.

There was virtual consensus amongst all interviewees regarding the limitations promoters are faced with: the lack of equipment, supplies and medicines necessary to attend patient needs; insufficient training, support, and in particular, supervision; and the shortage/lack of technically accurate and up-to-date written reference materials.

Promoters, in particular, believe they could be far more effective in their roles--both qualitatively and quantitatively--if they were to receive the necessary technical and moral support and supervision of district personnel. The institution of monthly meetings and/or supervisory visits was one of the most commonly proposed solutions. Many promoters specifically requested that local midwives also be included in these meetings and other training activities in an effort to increase the level of collaboration and technical support between them.

Also, these promoters insisted that even the most basic of equipment, supplies, and medicines would greatly facilitate the execution of the activities they are expected to carry out. Several proposed that the MOH return to its former policy of distributing the medical kits which used to be standard issue for all rural health promoters. Improving the distribution of training/ reference materials, adapting their presentation to local needs, and strengthening the clarity and technical accuracy of educational messages in them, should also be viewed as key strategies for increasing the effectiveness of the rural health promoter. In one district, it was noted that the availability of training manuals served as an important stimulus to promoters. In fact, several who had become inactive resumed their service specifically for this reason.

MOH personnel in these study districts also felt that promoters need and deserve more and better incentives for their work--if not outright compensation, so as to enable them to spend more time to attending the health-care needs of their communities. Suggestions included providing them with food rations such as those distributed by CARE; the payment of regular, timely and higher per diem rates for their participation in training

activities; and the provision of at least a minimal stipend. District personnel also recognized that increased training, supervision and material support would serve as important stimuli to promoters.

B. Results of Oral Rehydration Tests (ORT)

This 18-item written test was administered to a sample of 90 promoters in the four study districts. Using current MOH norms as the basis for scoring these tests, the sample of health promoters achieved a total mean score of 59.4%; only two promoters scored above 80%.

No statistically significant difference was found to exist between mean scores for this test as a whole between promoters by district. This finding suggests that the overall impact of training is fairly consistent across these four districts.

As the following table illustrates, scores varied considerably by subtopic. It is important to note that while statistical differences did appear between districts in some of these areas, no one group of promoters did consistently better or worse than any other group.

Mean Scores by Sub-Section of Test (%) :	Promoters (n=90)
Dangers, Causes & Prevention	82.5
Diagnosis and Referral	77.5
Feeding and Fluids	41.9
Case Histories	54.2
Preparation of ORS	65.0
Administration of ORS	23.8

The two sections of most concern are those related to the nutritional management of a child during and after an episode of diarrhea, and the administration of fluids, including ORS. Here, much of the problem could be resolved by revising the vague educational messages contained in promoters' training manuals. The MOH's 1988 normative manuals were also found to be inconsistent in their instructions, which may help explain low scores amongst those promoters trained by them. In particular, the distinction between "continue" and "increase" the administration of breastfeeding/fluids/feeding requires clarification. This is especially critical in the case of fluid intake, an increase in which is a key strategy to preventing dehydration. This concept takes on added importance given that nearly 15% of the promoters did not recognize that diarrhea can lead to dehydration, a primary focus of diarrheal disease control efforts.

Furthermore, between one-quarter to one-third of the promoters recommended a "reduction in" or "withholding of" breastfeeding, fluids or food as appropriate treatment during an episode of diarrhea. Over 10% indicated that less food than usual should be given a child following an episode of diarrhea. Given the high morbidity and mortality rates due to dehydration and malnutrition in Guatemala, it is necessary for the MOH to provide clear and consistent guidelines with regard to the prevention of these complications as a consequence of diarrheal disease.

Finally, it is of concern that such a high percentage of study participants responded that ORS should be administered in fixed quantities or according to rigid schedules, rather than taken on demand or as much as the child would like. Attempting to adhere to detailed schedules and instructions from a promoter or health professional can be both confusing and frustrating for a mother. It can also increase the risk of over or under hydrating a child if calculations are not commensurate with real fluid needs.

Knowledge of the preparation of ORS was also found to be deficient, especially for the homemade mixture, where results were roughly 50% lower than for the packaged preparation (mean scores of 45.0% as compared to 87.5%). With regard to homemade ORS, most notable was the wide range of responses to the quantity of ingredients to add, with some of the proposed preparations resulting in a potentially fatal mixture for a child. Another common source of error appears to be the confusing of teaspoons and tablespoons. This source of confusion is in turn exacerbated by an apparent confusion between current and past MOH norms, where measurements which were previously expressed in one unit are now expressed in another or in an entirely different quantity.

In addition, there appears to be a significant degree of confusion in this sample regarding the preparation of homemade versus packaged ORS. Nearly one-quarter of the promoters indicated that some quantity of orange juice should be added to the packaged preparation. A lesser, but still disturbingly high, percentage would also add some quantity of salt, sugar or bicarbonate of soda to this mixture. These are serious misconceptions which deserve urgent attention.

Overall, the promoters scored quite well on those questions related to diagnostic and referral symptoms when presented as an "out-of-context" list. Once placed into more of a "real-life" situation requiring treatment decisions, the scores drop. As evidenced by the results of the three case-history questions presented, the general tendency in the sample is to go a step beyond the indicated treatment at any given stage. Thus a patient suffering mild to moderate dehydration, for example, is referred to the health service "as soon as possible". This situation presents serious implications for a health-care system already operating under conditions of extremely limited human, financial and material resources. It also suggests the need for providing promoters with a theoretical framework, such as the

MOH's "Plan A/B/C" diagnosis/treatment scheme, which will enable them to make more resource-efficient decisions. The use of case histories and increased practical experience in examining patients may also help to reinforce improved diagnostic, treatment and referral decisions.

The deficiencies detected in the promoters' knowledge of the control and management of diarrheal disease tended to be reflected in similar kinds of responses amongst those mothers interviewed in the course of the field studies. It is important to note that while scores on the ORT test were low overall, the areas which caused the most difficulty were those where MOH training or normative manuals also tend to be deficient in some way. This finding suggests that strengthening the technical content of these didactic/reference materials could have a significant impact on promoter knowledge, and in turn on the level of community knowledge as transmitted by the promoter. Certainly this explanation should be explored further before dismissing the MOH's efforts as being ineffective in achieving the desired impact at the community level.

C. Results of Immunization Tests (EPI)

The total scores on the 20 EPI questions, given to 94 promoters in four Health Districts, were alarmingly low reflecting a lack of the basic knowledge vital for the extension of immunization coverage. The total mean score was 67%, slightly better than the test on diarrhea and dehydration. When the scores were disaggregated by Districts, gender, age, marital status, number of children, occupation, length of time as a promoter, and the date of the last training, and analyses of variance were performed, none of the subgroups as defined by these independent variables were significantly different ($p < .05$).

There were, however, some distinct differences in the scores on the four sections of the test:

Mean Scores by Sub-Section of Test (%) :	Promoters (n=94)
General Knowledge	74.2
Immunopreventible Diseases	78.9
Vaccination Scheme	49.5
Educational Messages for Mothers	66.2

Again, when disaggregated by District, there was no statistically significant variation on the scores for the four promoter subsamples.

It is important for promoters to know what their vaccination activities should involve, particularly when it comes to educating and informing community residents about necessity to immunize pregnant mothers as well as young children, teach about reactions, keeping a record of children and mothers at risk, and being able to recognize the sign and symptoms of immunopreventable diseases. Almost one-quarter did not feel that record keeping was important, one-fifth did not recognize the need to teach about reactions and visiting unvaccinated women and children. Another 15-20% did not recognize their role in promotion and participation in vaccination activities, almost the same number did not realize they should teach community resident about when and how often children should be immunized. Over 90% of the promoters knew they should teach community residents about vaccines, the diseases, and the risks taken when children are not immunized.

Almost half the promoters did not have any conception of vaccination coverage, and nearly one-quarter did not recognize the importance of training for those who participate in immunization activities. Some 15% did not recognize the importance of correct vaccine handling and almost as many had no idea about community participation. About one-fifth of the promoters could not correctly identify the six immunopreventable diseases, and when asked to name the diseases prevented by BCG and DPT, close to half could not.

These results point to a real need for basic education about immunization and the role of the promoters. Quite possibly, these are concepts which were not strongly emphasized during their original training, or else it was so long ago and with no refresher course, they simply did not remember.

When given the five questions on the signs of the five EPI diseases, about one fifth, with some variation by disease and some very well known signs, of the promoters did not mark all four of the correct choices. Although the scores on this section were the highest, it should still be of concern that so many promoters did not such basic knowledge. This also has implications for recognizing possible epidemic outbreaks which require prompt notification of public health officials and the referral of patients requiring immediate medical attention.

For health promoters to help increase immunization coverage, it is vital for them to educate and persuade mothers to have their children as well as themselves when pregnant inoculated at the appropriate time with the correct number of doses within specified intervals. Unfortunately, the scores for this section were the lowest and need to be carefully examined to determine what should be done.

The knowledge of when, the number of doses, and minimum time between doses for pregnant women to receive tetanus toxoid is

unacceptably low. According to the results of a recent survey,² the fact that coverage for this vaccine is the lowest of all in the EPI group should make improvement of coverage one of the highest priorities. The two most recent versions of norms for trainers do state that the mother should receive two doses beginning in the fifth month of pregnancy, but a recent training manual for voluntary personnel does not contain anything about pregnant mothers and tetanus toxoid immunization. The fact that about half of the promoters interviewed did not know the minimum essentials of tetanus toxoid procedures, clearly indicate deficiencies in recent training and/or the lack of training in current norms.

The promoters' knowledge of when BCG, DPT, polio and measles should be given is also low; the numbers who did not know that BCG should be given at birth and DPT at two months, approaches one-quarter of the sample; and for polio and measles the lack of knowledge was between one-third and one-half.

The confusion here may, in part, be related to changing norms. The November 1987 norms, cited above, state that BCG should be given to children under one year of age, but the most recent norms changed the wording to--"from birth." In the case of DPT, there was a change from 3 months in the old to 2 months in the new norms. Since the test was corrected using the new norms, the reason for the low scores may be simply that the promoters have not yet received refresher courses. A closer examination of the data, however, indicate this may only apply to some promoters. As shown in Figure 40, the number of promoters who did not answer the question for BCG and DPT was 43.6% and 24.5%, respectively, indicating they simply did not have any idea and did not want to guess. For polio and measles, as well, the number who did not provide a response was considerably higher than those who did. The data, therefore, indicate low levels of knowledge of both current as well as past norms.

Making sure that mothers recognize the necessity to have their children vaccinated the correct number of times is extremely important; failure to do so greatly reduces immunization coverage. The recent survey cited above, shows that for DPT and polio the percent of children vaccinated drops by approximately 15 from the first to second and by another fifteen percent from the second to the third dose. If promoters are to be effective agents for assuring proper coverage of these vaccines, they must know the number of doses and the correct time interval between them. For both DPT and polio, the number of promoters who could

² In a sample of 4,597 women who gave birth in the past five years, only 13.6% received a tetanus toxoid vaccination. The percentage of indigenous mothers was 6.9 as compared to 18.6 for ladinos. These figures are from Guatemala: Encuesta Nacional de Salud Materno Infantil 1987, Ministerio de Salud Publica y Asistencia Social, INCAP, and Institute for Resource Development/Westinghouse Health Systems.

not supply the correct number and interval was surprisingly large in both instances; less than half but more than one-third could not indicate the correct number of doses and half did not know the intervals.

Again, there are some differences between the old and current norms on the intervals for both DPT and polio. In the old, the DPT interval was a minimum of 6 weeks to a maximum of one year as compared to the current 1-4 months for both DPT and polio. The old interval for polio was 6 weeks. But for both DPT and polio, the number who provided no answer was over 40% of the 50% who did not give the correct response.

When not to vaccinate a child has been a subject of disagreement in public health circles for a long time. There appears to be general agreement that no vaccination should be given if the child is seriously ill; but then, what does seriously ill mean? According to Dr. Robert Northrup, technical director of PRITECH, the criterion of a fever above 39°C or 102°F should be used. Among our sample of promoters, however, there is great confusion. Approximately 40% said that malnutrition, diarrhea, colds and flu are all reasons not to vaccinate; only 10% did not also include serious illness.

Since so many promoters, and most certainly other health workers as well, use these and similar criteria for not vaccinating, how many children are not immunized during routine EPI activities and what effect has this had on coverage? Keeping in mind the high rates of malnutrition and the high prevalence of diarrhea and upper respiratory infections in Guatemala, the number who are not vaccinated but should and could have been is most probably quite significant; to our knowledge, no quantitative data exists and one can only venture an educated guess--10% would appear reasonable in the current context. Both sets norms cited above state that seriously ill children should not be vaccinated, but neither define what is meant by "serious."

One of the most important problems for the implementation of an immunization program is the reluctance of some mothers to have their children vaccinated. Recent surveys have shown a variety of reasons, but the most common is the fear of adverse reactions and the possibility of getting the disease that the vaccine is meant to prevent. The role of the promoter is, therefore, very important for the appropriate education of the mother about vaccines and what to do if a child has an adverse reaction, to inform her that she can bathe the child any time before and after vaccinations, and in the case of oral polio vaccine, the proper amount of time to wait before nursing and feeding.

Overall, the recognition of the signs of adverse reactions were well known, except for a generalized "low" feeling accompanied by loss of appetite. A problem does exist in the amount of baby aspirin that should be given for febrile reactions. Over three-quarters said 1 baby aspirin every four hours rather than one every 6-8 hours as dictated by current norms. This is probably

the best example of the persistence of the old norm of 4 hours as shown by the equal number of promoters who incorrectly marked the old and failed to recognize the new; almost the entire sample answered the question.

Significant misconception still surrounds proper bathing practices before and after vaccinations. Almost half the promoters did not know that no precautions need be followed regarding bathing. Correcting this belief would be helpful in convincing mothers that vaccinations are really not anything out of the ordinary and that she does not have to do anything special.

When presented with four valid reasons for bringing a recently vaccinated child to the health service, 10-25% of the promoters failed to recognize them. Additional emphasis on how to recognize reactions should be made during training, supervision, monthly meetings and in reference materials. It should be kept in mind that a minuscule number of reactions can be fatal, but the news of such an event can spread very rapidly. The adverse publicity can and will cause many families to decide not to take a chance with their children.

D. Recommendations

We believe that the administration and management of the EPI/ORT Project should reconsider the role of the health promoter as a part of programmed activities. The current training programs, reference materials, and institutional support of the promoters is inadequate in terms of effort and financial commitment. It is our feeling that if promoters are to receive continued project support, a larger share of the budget should be allocated to promoter training, supply, and supervision.

Assuming that volunteer health promoters will continue to have an important role in the implementation of project activities and as a consequence of our findings, we make the following recommendations:

1. The specific duties and responsibilities of the promoters should be established for ORT and EPI activities. The duties should be prioritized in relation to the numerous other activities to determine if, in fact, the promoters can effectively comply. Consideration should be given to limiting activities to realistic goals that can be reached without interfering with promoters' livelihood.
2. Training for promoters should be redesigned with a greater emphasis on practical experience and preventive activities. Training manuals should be redesigned and updated to reflect current norms. Furthermore, all trainers should have a clear understanding of all current norms and procedures.

3. Consideration should be given to holding training sessions in the promoters' native languages in selected linguistic regions. Not only will the promoters have a better understanding of what they are supposed to do, but they will also be able to give more comprehensive and credible explanations to monolingual parents.
4. Brief reference materials and normative updates should be appropriately designed and distributed to all active promoters. A promoter newsletter, although costly, would provide an additional means of communicating new procedures as well as provide a new linkage to the MOH.
5. The monthly meeting of promoters at the district-level should be held for all promoters involved with project activities. The MOH personnel holding the meetings should be trained to make the sessions interactive and productive ways of reinforcing specific procedures and norms. For instance, a different theme or aspect of ORT/EPI could be emphasized each month in the form of structured and segmented mini refresher courses. This would also be the appropriate place to distribute and discuss the content of the proposed newsletter and/or normative updates.
6. Although we recognize that it is impossible under current economic conditions for the MOH to pay a "stipend" to promoters, they should receive an adequate per diem to cover their expenses while attending training sessions, refresher courses, and monthly meetings. The increase in the cost of living in Guatemala would infer undue hardship on promoters if they had to pay their own way; many potentially good and dedicated individuals simply would not be able to receive training.
7. From our interviews and focus groups with mothers, we suggest that the MOH explore the possibility of implementing complementary educational methodologies to supplement current training efforts. The use of "social marketing" techniques could well prove to be one effective alternative. Most educational messages which need to be transmitted lend themselves quite well to being put to music, for example. Short songs or jingles could be authored to aid recall not only for community members, but for promoters and MOH personnel as well. Given the vast musical talent in the country, it would not be difficult to identify a group or individual capable of producing such music with popular appeal--or perhaps even sponsor a national contest of some sort.
8. Given the inaccessibility of countless tiny communities here in Guatemala, it would be worthwhile to tap into those networks which already reach them. Bottling companies, for example, have already established extensive distribution systems. Many of these companies sponsor regular contests based on the use of bottle caps. If these companies could

be convinced to use a similar strategy for transmitting health messages, the impact could potentially be great. Snack foods and cereals also receive wide distribution, and games or educational messages are often printed on these packages.

9. According to our field reports, community members in San Lorenzo, San Marcos, demonstrated a significantly higher level of knowledge as compared to other communities, especially with regard to EPI--higher, in fact, than amongst the promoters themselves. Use of the channelling strategy and the painting of health messages on village walls throughout the department may provide part of the explanation. It could prove quite informative to explore what other factors may be contributing to this situation, and study their applicability to other communities.
10. We also recommend that further operational research be done on the amount of time promoters and mothers spend administering ORS. This is particularly important for determining how many families that can be covered by a promoter to assure mothers' compliance in the use of ORT. Taking into account the seasonal variation in diarrhea rates, it should be possible to estimate the number of children in a population who have diarrhea at any given time. The number of promoters per probable cases should then be adjusted to be within realistic limits of required time to teach and demonstrate the correct use of ORT.
11. Further ethnographic case studies to investigate the effectiveness of training, retraining and the dissemination of new norms should be carried out by the Investigative Unit of the MOH Human Resources Division. Personnel from this Unit were involved in the current study and were trained in qualitative methodologies. These participants demonstrated good observational abilities and with further training should be able to take part in all project related research activities; with adequate experience, the Unit should be able to design and administer data collection and analyses.

II. INTRODUCTION

A. Background and Objectives

The Immunization and Oral Rehydration for Child Survival Project officially began in August of 1985 as an expanded program of immunization for children under five years of age and for pregnant women who live outside of the department of Guatemala. The fundamental objective is to increase up to 80% coverages for BCG, polio, DPT and measles vaccines. In July of 1986 the Project was amended to add Oral Rehydration Therapy (ORT) to the original immunization activities, and additional objectives were established to increase to 80% the use of ORT for the treatment of acute diarrheal disease.

The Project's community-based activities have built on experience in rural areas over the past 15 years. One major accomplishment during the 1970s was the training of large number of Rural Health Technicians (Técnicos en Salud Rural or TSRs). The TSRs received two years of training using an innovative curriculum mixing curative, preventive and community development activities; the emphasis was on the latter two. The TSRs were intended to work in local communities and a major task was to help select and train community volunteers or health promoters. Their efforts since the 1970s have resulted in an extensive network of promoters who have worked for varying periods of time, and many continue to provide primary health care in their communities.

Two research projects in Baja Verapáz and El Progreso, provided extensive data on how health services could best be provided to local communities. One, the Rural Health Promoters Training Research Project (PRINAPS), trained and used 400 promoters who provided primary care and sold medicines at a nominal profit. The other was the Project for Integrated System of Nutrition and Primary Health Care (SINAPS) and was designed to strengthen community health care by improving support systems and reinforcing linkages with fixed facilities, Health Centers and Posts. These experiences convinced AID and the MOH that developing community participation through the use of voluntary promoters was quite possibly the best way to expand and improve the delivery of health services.

In 1980, based on the results of these studies, the MOH and AID decided to implement a pilot project in the Highlands (San Marcos, Totonicapán and Sololá) called the Community Based Integrated Health and Nutrition System (SCISN) with three basic components -- primary health care, environmental sanitation and support systems. The project continues today, but only the environmental sanitation component remains. Much of the MOH personnel from all three projects, especially from SCISN, are currently working in the current Immunization/ORT Project.

Evaluations of SCISN showed that the approach was working but the political conditions in the Highlands during the early 1980s were

not conducive for project implementation. Community participation in supporting the project, however, was excellent. The major lesson learned was that future projects should be simple in design with a clearly defined scope of activities; administrative responsibility should be taken into account as well as the available managerial capacities at all levels of the public health care system.³

During the past two years studies have been done to determine the extent of knowledge, attitudes and practices of both mothers and health care providers regarding immunization and diarrheal disease. The first was a nation-wide survey of over 9,000 families and the second a detailed study of 303 physicians, nurses and auxiliary personnel. These studies have provided large amounts of information which has been used in the design of training curricula for MOH personnel and the planning of promotional strategies.

The training of Health Area and District personnel in the procedures for channelling, EPI and ORT has been done in most regions. Furthermore, some Areas and their Districts have also held training sessions of variable length for part of the estimated 7,650⁴ promoters and volunteers who are currently and who will at some future time participate in project activities. The remaining Areas and Districts plan to finish all levels of training during the first two quarters of 1989.

In the process of observing training and talking to local MOH personnel during June, July and August, 1987 and January, 1988, it became apparent that agreement exists on the value of and the vital role played by volunteer health promoters in the expansion of immunization coverage, in promoting ORT, and most importantly, in convincing mothers to give ORS to their children. Beyond these basic sentiments, few had any real sense of what was, in reality, being taught and accomplished at the community level.

The present study was designed to develop a methodology and train MOH personnel in the procedures for gathering data on the effectiveness of rural health promoters, the value and appropriateness of their training, and to identify the problems encountered at the community level. Our strategy was dual using formal quantitative tests of promoter knowledge combined with qualitative ethnographic observation of technical interventions with mothers and children.

³Data on project histories and impact are from the 1987 Update of the 1986 Health Sector Assessment and the report on Sustainability of U.S. Supported Health Programs in Guatemala.

⁴ It is by no means clear how many promoters are currently active in Guatemala; the original EPI Project Paper stated 7,650 while the ORT Amendment said 5,400. It is our belief that no one knows with any certainty how many promoters are presently at work in Guatemala.

B. Study Design and Methodology

The data for the eight case studies presented in this report were gathered by four teams of observers who spent approximately one week in each community. Their methodology was qualitative ethnography designed to provide insights into real behavior, attitudes and to identify problems encountered on the local level. Most of the information was obtained using open-ended interview guides and observational check-lists.

This study was intended to examine the content of promoter training, promoter performance of specific activities related to immunization and ORT in a minimum of three communities, the attitude of mothers in the selected communities concerning EPI/ORT interventions, and the mothers' view of the promoters' work in their communities.

The object was not to investigate a statistically representative sample of Guatemalan health promoters but to collect data on diverse groups of promoters over a longer period of time than possible by brief survey encounters. In order to include more of the economic, social, geographic and linguistic diversity of Guatemala, it was decided to do 8 separate community case studies; more specifically, 2 communities per Health District in each of 4 Health Areas.

The criteria used for selecting the Health Areas were intentional to assure the necessary diversity. We wanted to include indigenous (both monolingual and bilingual) and ladino communities, communities which have both easy access to MOH health facilities and those that are more remote, and we wanted to have promoters who had been recently trained and others who had received no training over the past two years or more.

Using ethnicity and language as criteria, we chose the Alta Verapaz, Quiché, San Marcos, and Escuintla Health Areas; in each Health Area, we consulted with local personnel as to when training had been done in each District and solicited suggestions for which Districts they believed should be included in the study. In each of the selected Districts, two lists of communities were drawn up -- one for nearby settlements and the other more distant. The study communities were then randomly selected from each list.

Study Communities

Health Area	District	Community	Distance to H. Post	Language	Last Training
Alta Verapaz	S. P. Carchá	Chilatz	5 km	Kekchí	May 1988
		Sto. Domingo	30 km	Kekchí	May 1988
El Quiché	Sacapulas	Pasaul Central	4 km	bilingual	1980
		Río Blanco	< 1 km	bilingual	1980
San Marcos	S. Lorenzo	Santa Rosa	< 1 km	bilingual	1987
		El Porvenir	1.5 km	Spanish	1987
Escuintla	S.L. Cotz.	Las Cruces	25 km	Spanish	Aug 1988
		Belice	33 km	Spanish	Aug 1988

The case studies were done by eight teams of two to five observers; each was lead by personnel from either PRITECH or the DGSS/Recursos Humanos of the Ministry of Health. The team leaders were assisted by personnel from each of the local Health Areas and Districts (See Appendices for a calendar of activities and the composition of each team of investigators).

Upon completion of each field investigation, the teams met with interested Area and District personnel to discuss the findings and implications for local planning, supervision and follow-up activities.

In addition to the community observation, formal tests designed to measure the promoters' knowledge of very basic concepts and procedures about immunization, diarrheal disease and oral rehydration therapy. The tests were given to the promoters in the study communities and most of the other promoters in each of the for Health Districts. A total of 184 promoters were tested, and the results are presented in Chapter IV. It should be noted that the tests were not intended to be representative of health promoters in general, but were designed to supplement and aid in the interpretation of the ethnographic case studies.

III. FIELD INVESTIGATIONS⁵

Case studies were performed in eight rural communities in four health districts across the country in an effort to help determine to what extent the Ministry of Health's "cascade" strategy of training in ORT and EPI has been effective in reaching the community level. The primary focus of this study has been on evaluating the level of knowledge of rural health promoters in these two program areas, and their effectiveness in serving as a vital link in the communications network between district health services and the community.

The field investigations consisted of study teams spending one week in each of the selected communities. Each team included at least one member from the local MOH health district or health area. Data were obtained through the use of several ethnographic study techniques, including participant observation, individual interview, focus-group discussions and archive review, in order to obtain information on local attitudes and practices with respect to ORT and EPI. In addition, written tests were administered to determine level of knowledge in these two program areas amongst rural health promoters.

Results of the field investigations are presented in this section, beginning with a brief description of the eight study communities. Following is a discussion of the teams' findings with respect to issues of institutional support to the rural health promoter; expectations and relations between the promoters, their communities and local health personnel, and activities actually carried out; knowledge, attitudes and practices of community members with respect to immunization and the management of diarrheal disease; and views on the effectiveness of the rural health promoter, both from his/her own perspective, as well as from the point of view of the community and district health personnel. Results of the written tests are presented in the following chapter.

A. The Study Communities⁶

1. Sacapulas, El Quiché:

The municipality of Sacapulas is located 206 km. northwest of Guatemala City, and a nearly two-hour, 50-km. drive due north of Santa Cruz del Quiché, the departmental capital. Despite El Quiché being known for its spectacular mountains, this region of the department is relatively low and flat in comparison (roughly

⁵ See Appendices B - E for map of study sites, calendar of field activities, list of study participants, and English-language translations of the field guides provided to each study team.

⁶ A more detailed summary of health and demographic characteristics is presented in Appendix I.

3,700 ft. above sea level); the climate is hot. Crop production in the area consists primarily of corn, beans, peanuts, citric fruits, sugar cane and some coffee at higher elevations. Last year's drought caused significant crop losses for much of the population.

Pasaúl Central is a hamlet ("caserío") of 4 km.² with a population of 555, situated 13 km. west of Sacapulas in one of the more mountainous sections of the township. Although the precise date the community was founded is uncertain, the first settlers are believed to have arrived in 1788. The entire population is classified as indigenous; about 70% is bilingual (Quiché/Spanish). Half of the men and nearly three-quarters of the women are illiterate. The one school offers classes through the fourth grade. Ninety percent of the population is Catholic, and 10% Evangelical; relations between them are considered "very distant."

Ninety-five percent of the population are small landowners who do mostly subsistence farming. It is a local custom to hold mass at the beginning of each planting season to bless the crops in order to bring high yields. There are no local industries. Average per capita income is estimated at Q2.50/day (less than US\$1.00). Some 10% of the population migrates to south-coast plantations during the planting and harvest seasons each year in search of wage labor to supplement their meager incomes.

There are virtually no public services in Pasaúl: no road, no potable water system, no electricity, no communications system, no health service. The nearest public transportation is 4 km. down the mountain in Río Blanco, where buses can be taken to Sacapulas and points west. The auxiliary mayor delivers mail to and from the municipal capital once a week. There is not a single institution, public or private, working in this community. The hamlet's only source of development assistance comes from its 6 rural health promoters and 4 midwives trained by the Ministry of Health.⁷

The village ("aldea") of **Río Blanco** occupies 6 km.² and has an estimated population of 4,110 inhabitants, including its six hamlets. This population is also predominantly indigenous (90% bilingual), and most women continue to wear an adaptation of their traditional dress. There are two schools in the village (primary and first year of "básico"), offering classes through the seventh grade. Ninety-eight percent of the population is Catholic.

As elsewhere in the municipality, the majority of the population is involved in agricultural production, with a minority of artisans. The rate of seasonal migration has declined steadily over the past four years since DIGESA (Ministry of Agriculture)

⁷ A more detailed profile of the rural health promoters included in this study is presented in Appendix J.

installed an irrigation system for the villagers. The resulting increase in production has made Rio Blanco an important economic center within the municipality.

Located along the dirt-road highway to the department of Huehuetenango to the west, the residents have easy access to bus service and private vehicles passing through to and from Sacapulas 9 km to the east, thus facilitating the marketing of local produce. Electricity and the potable water system reach some sections of the village. There is a telephone connection to the municipal capital, and mail service to and from the town is available twice a week. Five public, religious and international agencies provide agricultural extension, reforestation, supplementary feeding and other development services, including the recent formation of a women's cooperative bakery. In addition, Rio Blanco has its own MOH health post staffed by an auxiliary nurse, plus 5 rural health promoters and 3 trained midwives.

2. San Lorenzo, San Marcos

The municipality of San Lorenzo is located roughly 275 km. west of Guatemala City, and 25 km. from the departmental capital of San Marcos on a dirt road passable year round but with difficulty during the rainy season. At an altitude of well over 8,000 ft. above sea level, the climate is cold, and the topography is typical of the western highlands region of the country. Principal crops include corn, beans, wheat and potatoes. According to 1987 census data, the municipality has a total population of 7,015 inhabitants.

The village of **Santa Rosa** occupies 10 km.², including its three hamlets, and accounts for 35% of the population of San Lorenzo. Eighty percent of the residents are Spanish speaking "ladinos"; the remaining 20% is indigenous bilingual in Mam and Spanish. Amongst the ladino population, 90% of the men and 85% of the women are literate; literacy rates are considerably lower amongst the indigenous residents. There is a primary school in the village (1-6 grades), and evening classes for higher grades were initiated in 1988. Literacy classes are also offered by a promoter from the Ministry of Education. Fifty-five percent of the population is Catholic, and the remaining 45% Evangelical; relations between them are said to be "harmonious."

Agriculture constitutes the primary economic base for this community. The famous "trancas de mayo", in which corn "tamales" are prepared stuffed with beans, is a custom believed to bring an abundant harvest and prevent hunger. Ninety percent of village residents are small landowners, earning an average income of Q90/month (about US\$245)--an amount considered adequate to meet basic needs. The vast majority of the population in the hamlets, however, is forced to migrate to the coffee growing coastal

region of the department or to Chiapas, Mexico from August to November each year to supplement incomes.

As there is no public transportation in Santa Rosa, residents make the 5 km. journey to the town of San Lorenzo on foot or horseback. A potable water system with house connections reaches 80% of the population. There is no electricity. Mail is delivered to and from the municipal capital by auxiliary mayors and there is a telephone connection to the town. Development assistance is provided through the CRS/Cáritas Food-for-Work program, and periodic visits from representatives of government agencies. The community also has its own health post staffed by an auxiliary nurse, plus 6 rural health promoters, one "volunteer collaborator" and 6 trained midwives.

The village of **El Porvenir Talquichó** occupies 4 km.², and has a population of 1,173--or 17% of the population of San Lorenzo. Fifty-five percent of the residents are Spanish speaking ladinos; the remaining 45% are bilingual native Mam speakers. Ninety percent of ladino men and 60% of the women are literate; once again, literacy rates are lower amongst the indigenous population. The one local school offers morning classes through the sixth grade; the facility is then used for adult literacy classes in the afternoons. Ninety-three percent of the population is Catholic and 7% Evangelical. Community members and leaders stated in interviews that religion has not posed a barrier to the achievement of common goals.

Most residents are small landowners who do subsistence farming and small animal husbandry. Wheat is the principal cash crop and yields have increased significantly in recent years with the introduction of improved planting techniques and the use of fertilizer. Most women perform domestic activities and produce handmade weavings which enjoy much popularity throughout the region. Average per capita income is estimated at Q90/month (about US\$245). A small minority (10%) supplement lower incomes by migrating for the coffee picking season from August to November, returning in time to harvest their own corn crop.

Three private bus lines provide transportation to the neighboring municipality of Comitancillo and to much of San Lorenzo. The nearest telephone, telegraph and mail services are available in the town, 2 km. away. While there is currently no electricity in the community, the necessary feasibility studies have already been carried out and the installation of power lines should occur in the near future. All homes have had potable water connections since 1976.

The Ministry of Urban and Rural Development has worked in Talquichó for 12 years, providing health and agricultural services and support to local artisans. DIGESA (Ministry of Agriculture) has provided agricultural extension services for 15 years. The nearest health service is the district health center in the town of San Lorenzo, about 1.5 km. away. The community has 6 rural health promoters and 3 trained midwives.

3. San Pedro Carchá, Alta Verapaz

The municipality of San Pedro Carchá is located 217 km. north of Guatemala City, and a half dozen kilometers or so from Cobán, the departmental capital. The health district of Carchá covers a total population of well over 60,000 inhabitants, 96% of whom are indigenous Kekchí speakers. The town itself, with an estimated population of 4,465, serves as the busy trading center of this large municipality, where coffee and cattle production serve as the primary source of employment.

The village of **Esperanza Chilatz** currently has a total population of 650 inhabitants, nearly double its population of three years ago. The elders of the community state that the village was founded in 1854, but the present community may be said to have been established in 1982, when the owner of the "finca" on which the land was located sold small plots to interested persons living in and around the area. Today, Chilatz is a widely dispersed settlement occupying approximately 3 km.² of hilly, rocky terrain, about 3,000 ft. above sea level. A rough path connects the village to Carchá, two hours away on foot. Chilatz is actually closer and more accessible to Cobán, however, which lies 9 km. to the southwest along a dirt road which passes within 2 km. of the village.

Like elsewhere in the municipality, the population is almost entirely composed of monolingual Kekchí speakers, and very few are bilingual or literate. Women continue to wear an adaptation of Cobán-style "hüipiles" (traditional women's blouses). The small-scale production of corn, beans and some coffee and cardamom provides a marginal living for these people. Most residents are thus forced to migrate, often for extended periods of time, in search of a means of supplementing their meager incomes.

The community UDRI ("integrated rural-development unit"), a joint project between the Ministries of Health, Education and Agriculture, serves as the focal point for development efforts in the village. Virtually all community level decisions are made by the UDRI committee. Members have been very active in promoting local health and agricultural projects, including the installation of latrines, the formation of a cardamom cooperative, and the construction of the village aqueduct and the connecting road to the Cobán highway. The committee was also responsible for appointing the village's first two rural health promoters to run the small UDRI health clinic, which is open for two hours a day except on Sundays.

The community now has three active health promoters who share responsibilities at the clinic, with one leaving the village each month in search of wage labor, while the remaining two alternate attending patients and making home visits. One of the original two promoters has now become inactive, having "deserted" to work as a promoter for the Ministry of Agriculture which pays its volunteer workers a small stipend.

Santo Domingo Secaj is situated at the summit of one of the highest mountains in San Pedro Carchá. There are two ways to get there: one route consists of a 30 km. foot path; the other requires a rugged 46 km. drive to the municipality of Tamahú, and then 8 km. up the mountain on foot (about 3½ hours for the second half of the trip alone). There are a total of 615 inhabitants in this tiny, isolated community.

Because of the cold climate and poor soil, agricultural production is low, yet still constitutes the principal source of income for residents, who must make the long, arduous journey to Tamahú or to neighboring villages in order to market surplus corn, beans and tomatoes. Like Chilatz, Santo Domingo has a community UDRI, which also serves as the hub of development efforts. The building consists of a communal meeting hall, a classroom and a small health clinic, stocked with minimal equipment and basic medicines, and run by the village's two rural health promoters.

There is no one "official" midwife in the community as birth is considered a family affair, with mothers, female relatives, or even husbands or fathers attending the delivery. About half of the population has access to piped water. The one school in the community offers classes through the third grade.

4. Santa Lucia Cotzumalguapa, Escuintla

The municipality of Santa Lucia Cotzumalguapa is located along the south coast highway, 88 km. southwest of Guatemala City, and 33 km. west of the departmental capital of Escuintla. Sugar cane and cotton production provide high incomes for the large plantation owners of this region.

The village of **Las Cruces Esfuerzo de Cerezo** was founded on December 22, 1987. The land was previously a "finca", whose owner was unable to meet bank payments on the property. The government subsequently expropriated the land, divided it into 140 family plots, and began distributing them to needy "campesinos" from across the southern reaches of the nation from San Marcos to Jutiapa. Sixty-four of the plots had been settled at the time of the field study in mid-September 1988. The community was named in honor of its principal organizer and president of the village development committee, Sr. Alfonso Cruz Vivas, and the President of the Republic, Marco Vinicio Cerezo Arévalo.

The one access road to the village starts near the Health Area offices in Escuintla and heads north along the old road to Antigua Guatemala in the department of Sacatepéquez. These first 10 km. are paved. From there, a poorly maintained dirt road heads west for another 15 km. This road frequently becomes impassable during the rainy season as the accumulated rains from further north rush down the mountains to the south coast, overflowing the banks of the several streams which must be

crossed on the road to Las Cruces.

Because of the recent establishment of the community, there has been no harvest as yet. Corn, beans, coffee and vegetables are all expected to thrive in this hot coastal climate. In the meantime, most of the farmers are forced to work as day laborers on neighboring fincas until their own plots begin producing. The one school in the community began to function in a private home in early June of this year and offers classes through the third grade. No potable water system has been installed as yet. The predominant religion is Evangelical and although the residents hail from various departments, the common language in the community is Spanish.

The nearest health services include a health post in a neighboring village and the health center and hospital in Escuintla. There are currently 8 recently trained rural health promoters and 3 midwives in the community. In addition, the village has received regular bimonthly visits from representatives of several governmental development agencies since the date of its founding.

The village of Belice is located over two hours by foot beyond Las Cruces, 33 km. northwest of Escuintla, and is properly in the municipality of Siquinalá. This land, too, was originally a finca. The village as such was established some 25 years ago when the owner began selling small plots to squatters already occupying the lands. Today, the community is populated by 260 inhabitants who are subsistence farmers. The rocky terrain is subject to heavy erosion and yields from the small plots of corn, beans and coffee are low. Most residents also work as seasonal day laborers on nearby plantations during the coffee and sugarcane harvests or rent small parcels on neighboring fincas to supplement the production of their own plots.

The community school was established 15 years ago and offers classes through the third grade. The predominant religion is Catholic and all residents are Spanish speaking ladinos. Mail service is available in the neighboring village of El Nispero; no other means of communication is available, nor does the village receive development assistance from the government or any other institution. The nearest health service is the health post located in Siquinalá, staffed by an auxiliary nurse and a sixth year medical student. The village has 3 midwives, and 5 new rural health promoters (one of whom is also a midwife), trained this past summer along with those from Las Cruces. There is no potable water system in the community.

B. Felt Needs of the Communities

Information for this section was obtained through individual interview and community-wide meetings in which residents were asked what they considered to be the priority needs of their communities. In general, responses were remarkably consistent with those needs perceived by field investigators, and can be classified according to the following development categories:

Infrastructure Development:

- electricity
- construct/improve access roads, bridges, and/or public transportation services
- communal meeting hall (Las Cruces)

Health and Nutrition Services:

- potable water (initiate, extend or complete community cover-age)
- latrines (initiate, extend or complete coverage)
- supplementary feeding program for pregnant women and malnourished children (Santo Domingo)
- establish vaccination post in community (Belice)
- establish health center or post in community (or, in the case of the health district of San Pedro Carchá, extend working hours of the UDRIs)
- trained midwife (Santo Domingo)

Education Services:

- build and/or fully staff local primary schools, and/or extend classes through the sixth grade
- establish secretarial and cooperative secondary schools in community (Las Cruces)

Agricultural Extension Services:

- increase agricultural assistance in general
- introduce cold-resistant crop varieties (Santo Domingo)

C. Expectations: Promoter - Community - Health Personnel

Interviews and group meetings were also held to determine expectations on the part of the promoters, their communities and district health personnel with regard to the role and support of the health promoter. Following is a summary of the findings of the study teams:

1. Promoters' Expectations

Promoters expect themselves to:

- * earn the confidence and respect of community members;
- * work for the benefit of their neighbors and families to prevent illness, provide curative care, and in general, promote the integral development of their communities;
- * constantly strive to improve knowledge of preventive and curative health care in order to provide more effective service;
- * share acquired knowledge with each other and with community members;
- * support one another's efforts;
- * dedicate more time to their communities and to their roles as health promoters;
- * not abandon their efforts in spite of often harsh limitations.

Promoters expect their communities to:

- * provide them moral support in their efforts;
- * share their concerns and actively participate in the search for appropriate/feasible solutions to community problems;
- * collaborate in the implementation of community development activities;
- * be open to learning from them, as well as to teaching them.

Promoters expect health personnel to:

- * adequately/better train, support, orient and supervise them in order to be better prepared to carry out their duties;
- * provide them with the necessary basic equipment, supplies and medicines to attend patient needs;
- * keep them informed of changes in MOH norms and policies which affect their work;
- * promote closer working relationships between promoters and midwives;

- * provide them with some sort of economic incentive (stipend, salary or other type of compensation) which will enable them to dedicate more time to attending the health-care needs of their communities;
- * recognize the value of their labors, and to treat them with courtesy and respect.

2. Community Expectations

Communities expect promoters to:

- * have access to basic medicines to treat common illnesses;
- * provide advice and medical attention within their capabilities;
- * recognize and respect their own limitations, and to know when, where and how to refer a patient;
- * assume leadership roles in solving community health problems;
- * support and participate in community development efforts in general;
- * serve as the community's health representatives in relations with other institutions;
- * recognize the high level of appreciation and regard they have for their efforts, and not abandon their much needed labors.

Communities expect health personnel to:

- * train, visit and supervise their promoters on a regular basis;
- * provide promoters with retraining to keep their knowledge and skills up-to-date;
- * provide promoters with the material support necessary to carry out their functions;
- * support promoters in resolving community problems;
- * receive promoter referred patients and provide them with adequate attention so that promoters sense institutional support for their efforts;

- * provide promoters with incentives to continue their work;
- * listen with patience to the community's health problems, and assist them in finding a solution within their means;
- * attend the public in a cordial manner.

3. Health Personnel Expectations

Health personnel expect promoters to:

- * coordinate health actions with them;
- * serve as multiplier agents for the local health services by assisting in extending coverage, and in providing medical attention to their communities;
- * organize their communities, and serve as the link between them and the local health service;
- * provide information, orientation and promotion of district health programs;
- * participate directly in the implementation of the channelling strategy (where used);
- * refer patients beyond their capability to the appropriate health service;
- * execute preventive health activities, provide health and nutrition information to their neighbors, and in general, assist in the integral development of their communities.

Health personnel expect communities to:

- * organize themselves;
- * develop and act on their own ideas of how to improve community health status;
- * collaborate in promoter or district sponsored health activities.

Health personnel expect themselves to:

- * provide more/better support to their promoters in an effort to increase their effectiveness;
- * provide more frequent retraining courses;
- * involve all district personnel in activities with promoters in an effort to establish closer working relationships;

- * establish a mechanism for the exchange of information between promoters and the health services;
- * work for required/increased support from MOH central-level authorities.

D. Activities of the Rural Health Promoter

1. General Activities

- * examine, diagnose and attend patients with common illnesses;
- * treat/prescribe medicines according to instructions in training manuals (where available);
- * refer patients to appropriate health service where indicated and comply with counter-referral instructions (where provided);
- * apply injections prescribed by health service personnel;
- * register patient data and medicines prescribed;
- * participate in channelling activities (where strategy being implemented);
- * monitor compliance with tuberculosis treatment prescribed by health service personnel;
- * make regular home visits, especially to provide follow-up care and monitor progress of high risk patients under their care;
- * provide orientation in accident prevention;
- * provide initial first-aid care and assist in transporting patients requiring referral to health service;
- * carry out a census of work sector and elaborate map;
- * collaborate in canine vaccination campaigns;
- * serve on local development committees;
- * coordinate activities with local public, private, religious and international development institutions;
- * promote infrastructure projects;
- * hold community wide meetings to promote health projects and provide general health education.

Problems Identified:

- * promoters are generally able to identify the principal causes of morbidity and mortality in their communities; however, with the exception of diarrheal disease, knowledge of causes and/or transmission process, and, therefore, appropriate preventive measures is weak;
- * the focus of promoters' work tends to be more curative than preventive;
- * some promoters feel they are inadequately trained to diagnose or treat some such common ailments as scabies, TB, tonsillitis, malaria, etc.;
- * injections were observed to be administered without a prescription;
- * a case register (of diagnosis and treatment provided) is not always maintained, or available; where available, the promoters are often confused about its purpose, how to fill it out, etc.;
- * basic first-aid supplies are largely unavailable;
- * many promoters expressed confusion over the task of making a community map (croquis), its purpose, etc.;
- * promoters do not always understand the organization of MOH services, much less the concept of health district and the respective functions of health post, center and national or regional hospital.

2. ORT Activities

- * diagnose cases of diarrhea and dehydration; provide treatment and monitor patient's progress; refer patients to health service where indicated;
- * distribute packets of ORS; train mothers in the preparation and administration of homemade and packaged ORS, and explain its importance to the effectiveness of the treatment plan;
- * advise mothers regarding the administration of fluids (including breast milk), feeding and refeeding during and after an episode of diarrhea;
- * orient/teach mothers regarding key measures for preventing diarrhea (e.g. improved personal hygiene, environmental sanitation, proper food preparation and storage practices);
- * participate in school deparasitation campaigns.

Problems Identified:

- * in general, promoters place more emphasis on cure than prevention of diarrheal disease and dehydration;
- * promoters themselves do not always practice the preventive measures they preach;
- * many promoters were reported to believe that ORS stops diarrhea;
- * ORS packets are not always available;
- * promoters do not always demonstrate the preparation of ORS, or explain its proper administration;
- * some promoters confuse the preparation of homemade and packaged ORS, stating that salt, sugar and/or orange juice should be added to the packaged mixture;
- * some promoters do not examine their patients for signs of dehydration;
- * promoters do not always provide patient follow-up to monitor progress;
- * treatment advice is occasionally inaccurate, and sometimes dangerous (e.g. one promoter prescribes enemas ("lavados"); another believes that if a child will not accept ORS, the mother can take it since it will pass to the child through her breast milk anyway);
- * patients are commonly referred to the health service prematurely (e.g. a case of diarrhea without signs of dehydration) which may indicate a lack of clinical self-confidence on their part, and certainly has implications for an already overburdened health system.

3. EPI Activities

- * educate their neighbors to the importance of vaccinating their children and promote vaccination related activities in their communities;
- * seek to involve other community leaders in vaccination activities;
- * participate in national vaccination campaigns;
- * help prepare the locale/vaccination post to accommodate cold chain requirements, etc.;
- * assist district health personnel in the application of vaccines (primarily polio):

- * advise mothers regarding the treatment of possible side effects;
- * collaborate in filling out necessary MOH paperwork;
- * monitor coverage of children and pregnant women in their work sectors, and refer or otherwise advise health personnel of those requiring follow-up attention.

Problems Identified:

- * many promoters do not understand the concept of "vaccine", although they do know they serve to prevent illness;
- * although many promoters know which diseases are immunopreventable they do not know which vaccine prevents which disease;
- * the majority of the promoters in these eight study communities are unfamiliar with the recommended age scheme for the application of vaccines;
- * the belief that vaccination causes sterilization, allegedly common in some communities⁸, has not been refuted or otherwise adequately dealt with;
- * in some communities (especially where the channelling strategy is not being implemented), census records, if they exist at all, are limited to total population counts; no records are kept on the number of pregnant women or children under the age of five, nor consequently, the rate of compliance with vaccination schemes.

4. Nutrition and Maternal-Child Health Activities:

- * provide orientation in family planning;
- * promote/coordinate activities with local midwives to identify and refer pregnant women for prenatal control, and newborns for well-child care; establish functional referral/counter referral systems with midwives;
- * implement growth monitoring activities (where the necessary equipment is available);
- * provide nutrition education;

⁸ a community survey completed in 1987 showed that popular beliefs in the ability of immunizations to sterilize are very low. In a sample of over 9,000 households, less than 1% expressed fears that vaccinations can sterilize their children.

- * promote family and communal vegetable gardens and the use of compost piles.

Problems Identified:

- * the promoters themselves generally do not provide prenatal care, or orientation in maternal nutrition or breastfeeding practices as they believe these activities to be the exclusive purview of the midwife;
- * coordination and referral/counter-referral system between promoters and midwives either does not exist or is not functional in these study communities, with the exception of San Lorenzo.

5. Environmental Sanitation Activities

- * provide orientation in improved personal hygiene practices;
- * promote improved environmental sanitation conditions, including adequate garbage disposal and the installation of sanitary latrines, proper food preparation and storage practices, and home improvement projects (e.g. stove construction);
- * participate in the introduction of potable water systems.

Problems Identified:

- * promoters were observed to not always follow their own advice in these matters, thus providing an example of questionable value to their communities (e.g. inadequate construction/use and/or maintenance of own latrines; allow pigs and other animals to run free in and around the house; do not boil water obtained from wells and streams; etc.).

E. Institutional Support of Health Promoters

1. Training

Santa Lucia Cotzumalguapa is the only one of the four health districts in the study sample in which formal, initial training courses were reported to have been held within the past few

years.⁹ Promoters in the two study communities trained by this health district received a two-month course in Las Cruces, recently completed in August of this year.

The district rural health technician served as the coordinator of this training event. Collaboration in the presentation of some sessions was received from two physicians (the district director, and Area Health Chief from Escuintla), the district sanitation inspector and graduate nurse, and the area-level social worker. In addition, three university students carrying out their rural practice in the fields of agronomy, medicine and nutrition also contributed their knowledge and experience to the effort.

Training methodology used was reported to have consisted primarily of lectures, generally following the content presented in the adapted versions of the 1983 PRINAPS manuals. Demonstrations and practice were provided in proper hand washing techniques and in the application of injections. It is interesting to note in this context that field investigators observed that barely a month after having completed their training, the promoters with whom they had the opportunity to share meals did not wash their hands prior to eating. No demonstrations or practice was offered in the preparation of either packaged or homemade ORS. In general, field investigators felt that the orientation of their training was focused more on curative than preventive aspects of health care.

The last full-scale training course in San Pedro Carchá was held in 1985, and in 1980 in Sacapulas; promoters who have joined the ranks in the interim have received their initial instruction and orientation through short annual retraining sessions--most recently offered in August of this year. Over the past year or so, the primary focus of these sessions has been on immunization, diarrheal disease and respiratory infections.

The principal trainers for these retraining events in Sacapulas have been the district rural health technician and graduate nurse. Auxiliary nurses at both the health center and post levels have reportedly expressed interest in participating as well, but have not been included to date. The auxiliary nurse at the Rio Blanco health post claims that her exclusion from training activities often precludes her being able to advise promoters in her community due to lack of familiarity with what they have been taught by health center personnel. Training

⁹ The report submitted by the investigative team in San Lorenzo stated only that the promoters "receive support from the existing health services in: training, retraining, follow-up to evaluate their actions and logistical support in accordance with the possibilities of the Health District." Date of last initial training was not specified. However, in discussing the history of promoters in the study communities, it was stated that 3-day retraining courses are held once a year, and that monthly sessions with district promoters are also held.

methodology in this district, too, is said to consist mostly of lectures, although demonstrations have been presented on the preparation of homemade ORS.

Attempts made by the Area Health Chief in El Quiché to obtain the new promoter training manuals from the MOH Division of Human Resources were unsuccessful due to a shortage of copies. In their absence, MOH-elaborated flip-charts served as didactic materials for the August retraining course. Training manuals were obtained, however, for those promoters in the district of San Pedro Carchá.

These annual retraining sessions have been supplemented by regular day-long monthly meetings with approximately 80 promoters in the district of San Pedro Carchá. Topics presented vary according to need (e.g. to prepare for programmed vaccination activities, or to address technical deficiencies detected during supervision). No such monthly meetings are held in Sacapulas. However, following their three-day retraining course this past August, promoters specifically requested that such a mechanism be instituted, and the district rural health technician agreed to follow up on this recommendation.

2. Supervision

As evidenced by the supervision records maintained at the village UDRIs in the two study communities in San Pedro Carchá, the district rural health technician makes monthly supervisory visits to the promoters in both Chilatz and Santo Domingo. (This implies a three-day commitment in the case of Santo Domingo, due to its distance from the health center and extremely difficult access.) The district director/physician and sanitation inspector were also reported to have made an average of one trip per year to Chilatz since the first promoter there was trained in 1985. Both had also made at least one visit to Santo Domingo.

According to all eleven health promoters in the two study communities in Sacapulas, none has received a supervisory visit from district personnel in at least the last five years. The auxiliary nurses interviewed supported this claim, adding that the promoters receive inadequate follow-up in general for their activities. The fact that the two district-level team members were considered "strangers" in their respective study communities would also seem to substantiate this claim. In fact, the teams' presence was reported by community members to the military commander in Sacapulas.

Perhaps due to their recent "graduation" from the training course, promoters in Belice and Las Cruces had yet to receive a supervisory visit from district personnel at the time the field study was conducted. Unfortunately, these promoters believed they should await this visit to be officially presented to their communities prior to initiating their work. These presentations were made during the field study, and in both cases community

members manifested their acceptance of the promoters and their interest in collaborating with them in the development of their activities. Promoters expressed a desire to receive at least one visit per month to help orient them in their new roles, and to assist them in resolving problems.

3. Resources

In all cases where data were presented, promoters were said to have received per diem during the last training or retraining course attended, as well as for monthly meetings in the case of San Pedro Carchá. Promoters in Sacapulas also received small quantities of World Food Program (WFP) products at their last retraining course. In both study communities in Carchá, promoters complained that the per diem received was insufficient to cover basic room and board and transportation costs; in Sacapulas, promoters claim they "almost never" receive per diem, and when they do, payments are routinely delayed by up to a month or more.

As compared to other health areas, promoters in San Pedro Carchá enjoy far greater material resources than most. Due to the existence of the UDRIs, promoters in Alta Verapaz not only have a locale in which to work, but also receive at least minimal equipment, supplies and basic medicines. It should be noted that these materials are generally received in donation from UNICEF and other sources; they are not, however, always adequate in amount, or in accordance with the therapeutic needs of the target population. The district rural health technician in Santa Lucía Cotzumalguapa has also managed to obtain donations from private companies, sufficient to provide each promoter with at least notebooks, pencils, syringes, gauze pads and plaster tape.

Promoters in Sacapulas receive packets of ORS, but claim their availability and distribution have been irregular. The auxiliary nurse in Río Blanco believes that since promoters have "nothing to offer" the people, this situation has affected their credibility in the community. Promoters agree this is a problem, and feel people "expect" them to provide medicines. They used to receive medical kits and believe they were an extremely valuable resource in their work.

Field investigators in Las Cruces made the observation that the rustic training facilities utilized (consisting of nothing more than four posts supporting a thatched roof), provided "inadequate conditions for a proper learning environment", and that necessary supplies for the effective execution of training activities were lacking. District personnel in Sacapulas also complained that space available in the health center is inadequate to meet training needs.

With regard to the existence of written reference materials, conditions vary greatly between districts. All eleven promoters interviewed in the study communities in Sacapulas insist they

have received no training manuals, didactic materials or other technical reference materials--with the exception of a one-page flyer on respiratory infections. Each promoter trained this past August in Las Cruces received a complete set of the adapted version of the 1983 PRINAPS promoter training manuals, but not until after having already completed the course.

In San Pedro Carchá, district promoters received copies of the new promoter training manuals printed in 1987 at their August 1988 retraining session. The UDRI's in Chilatz and Santo Domingo have also been provided with copies of David Werner's "Where There is No Doctor" and two self-study therapeutic guides. Unfortunately, in Chilatz field personnel discovered that these Spanish language manuals present difficulty for native Kekchi speakers with very limited schooling. Both the language barrier and level of presentation of the material were identified as obstacles to the effective use of these manuals by promoters in this district. A similar conclusion was drawn by the field team in Santo Domingo. Curiously, in spite of these obstacles, the availability of these reference materials has apparently served as a stimulus to promoters. A number of previously inactive promoters have reportedly reinitiated their activities, specifically due to this source of increased technical support. Further investigation would be needed to determine whether such support would produce similar results in other communities as well.

F. Promoter Relations: Community and Health Personnel

Without exception, field investigators reported having observed very good relations between promoters and community members in all eight study communities in the four health districts. Promoters are well accepted, are viewed as community leaders, and as such, receive the respect, confidence and community support traditionally accorded to most local leaders. Perhaps not surprisingly, these promoters also tend to enjoy better than average economic status and educational levels as compared to their neighbors. In several communities it was reported that residents actively collaborate in all promoter sponsored activities. In the case of Chilatz, San Pedro Carchá, it was specifically stated that the community regards the presence of its promoters as a "permanent source of stimulus for development". Both in Chilatz and in Santo Domingo, the presence of the UDRI health clinics draws patients--and consequently active support for the promoters' roles--from well beyond village boundaries.

While community acceptance of these promoters is high and motives mentioned for becoming rural health promoters were almost exclusively altruistic in nature, it is noteworthy from a programmatic standpoint that, with the exception of those in San Lorenzo, virtually all of these promoters were either self selected or chosen by health district personnel. Thus although

it is important to recognize the value of personal motivation as a selection criteria, the absence of active community participation in the selection process indicates that MOH norms in this regard have generally not been followed in these communities.

Relations between promoters and other community leaders or representatives of development agencies were also reported to be quite positive, with much coordination of activities occurring in most cases. In Las Cruces, for example, the local school teacher had already invited promoters to present health talks to her students, despite their newness to their role and lack of experience.

No interpersonal conflicts or rivalries were detected amongst promoters themselves--on the contrary, promoters were observed to be respectful and quite supportive of one another's efforts. The fact that most of the promoters in these communities are relatives or close friends makes their work somewhat of a "family affair", and evidently contributes to the positive and mutually supportive working relationship between them. Las Cruces is perhaps a special case, since as a newly formed community, residents in general are struggling together to build their future.

The level of collaboration between promoters and midwives is generally less close, with the notable exception of the two study communities in San Lorenzo, San Marcos. Elsewhere, while personal relations tend to be friendly and supportive, very little interaction on a "professional basis" was reported to be occurring, e.g. referral of patients back and forth, or consultation or sharing of technical knowledge and skills. For example in Pasaúl, Sacapulas, in a meeting held between promoters and midwives, the midwives claimed not to recognize a packet of ORS, or to know how to prepare or use it. Both in Chilatz and in Pasaúl, midwives and promoters specifically requested that their health districts sponsor regular meetings between them in an effort to increase their interaction and to help address deficiencies in level of technical knowledge.

Judging from field reports, communication between promoters and health personnel varies by health district both in quality and quantity. In San Lorenzo, relations were reported to be strong, especially between promoters and the district rural health technician, sanitation inspector and the doctor, as well as with those personnel who participate in channelling activities. In San Pedro Carchá, monthly district wide meetings are held for the over 80 health promoters; the rural health technician visits promoters in their communities on a regular basis; and several of the district personnel are bilingual Kekchi/Spanish speakers, including the rural health technician and the sanitation inspector.

In Santa Lucía Cotzumalguapa, where the relationship is still a relatively new one and has been generally limited to the context

of the recently completed training course, relations were described as "cordial", with the expectation that they will continue in a positive manner. In the case of Sacapulas, the four promoters who have served their communities for 14 years now, claim contact with district personnel has decreased over the past several years. All eleven promoters in the two study communities in this district expressed a desire to improve these relations and the level of attention received, especially with regard to orientation and supervision.

G. Patient Referral System

The level of effectiveness of the patient referral/counter referral system was also reported to vary by health district. Investigators on the San Lorenzo study team reported no problems in this area, with the exception of a shortage of the referral/counter-referral coupons provided by the MOH Division of Human Resources. Promoters from both study communities in this district routinely refer patients they judge to be beyond their level of clinical capability--either to the health post in the case of Santa Rosa, or to the health center in San Lorenzo as the situation warrants. These promoters expressed their satisfaction with the way their referred patients are attended, and with the counter-referral instructions received from medical staff. Due to the difficult access between the district health center and the study communities in San Pedro Carchá, the referral system is far less convenient for patients, who subsequently rely more heavily on their promoters and the resources available at the UDRI clinics. It is more common, for example, for promoters to refer patients to one another on an informal basis. When used, however, the system is reported to be functional, although a shortage of referral coupons was also reported by these promoters.

Promoters trained by district personnel in Santa Lucia Cotzumalguapa received a stock of referral coupons upon completing their training last August. Those in Las Cruces have reportedly used these coupons already to refer patients to the health post in a neighboring village and to the health center in Escuintla. They stated, however, that as of the time of the field investigation, they had yet to receive any follow-up instructions from either health service. Nor had the promoters themselves taken the initiative to provide follow-up home visits on their own. In Belice, promoters had yet to formally initiate any activities by the time of the field study. Only the midwife-promoter had referred patients to the health post in Siquinalá and the health center in Escuintla, but in her capacity as midwife, not health promoter.

In the past promoters in the two study communities in Sacapulas referred patients with handwritten notes. Now that they have received referral coupons, these replace the notes for patient referral to the health center. They are not used, however, for

referring patients to the Rio Blanco health post, and reportedly, in this case, the system does not function adequately. Even at the health center level, promoters claim they receive counter referral instructions only when a patient requires follow-up treatment involving injections. No information is provided the promoters regarding treatment received by the referred patient at either health service. Too, several cases have been reported in which promoter referred patients claimed they were not well attended by health personnel. The promoters feel this situation puts them in a awkward position with their patients and their communities in general, and recommended that a meeting be held with all district personnel to seek a solution to this problem.

H. Mothers' Knowledge, Attitudes and Practices

Individual interviews and focus group discussions were held with a number of women in each of the study communities to explore their knowledge, attitudes and practices with respect to the causes, symptoms, treatment and prevention of diarrhea, dehydration and immunopreventable diseases. Questions asked were based on the discussion guides provided to each study team, and are similar in content to those included in the written tests administered to district health promoters. Where language proved a barrier, local promoters or district health personnel served as interpreters. Following is a summary of the results of these interviews:

1. Diarrhea and Dehydration

Most of the women interviewed in these eight communities demonstrated a good understanding of the signs and symptoms of diarrhea, not a surprising finding given the endemic nature of the disease in Guatemala. Too, most mothers recognized the lack of adequate personal hygiene and environmental sanitation practices as principal causes of the disease. Many, however, also attributed the disease to supernatural or behavioral causes such as evil eye (mal de ojo), fright (susto), or anger (enojos). Teething is also widely believed to be a causal factor, but one which is "not dangerous", and therefore requires "no treatment". These perceptions of the etiology of diarrheal disease are remarkably similar to those reported by Elena Hurtado (INCAP) and Dr. Susan Scrimshaw (UCLA) in a study carried out a few years ago.

Treatment plans recommended by these mothers were far less consistent between study groups. Those interviewed in Las Cruces and Belice, for example, stated that they give their children "Santemicina", "Aureomicina", or "Yodochlorina" which are locally

or regionally patented drugs.¹⁰ Mothers in Santo Domingo indicated that they routinely give their children "some medicine" to "stop the diarrhea"; most likely a commonly prescribed antidiarrhetic such as Kaopectate containing kaolin and pectin. In Río Blanco, ORS was commonly believed to serve this purpose, as well as to give the child "strength".

All the mothers reported that they continue to breastfeed their young children when they have diarrhea, and in some cases "a little more than usual" because it helps to "keep the child from crying". In addition, all reported continuing or increasing the administration of fluids available in the home, including herbal teas, fresh fruit juices, atoles, boiled water, and, in most cases, either homemade or packaged ORS.

The majority of mothers interviewed recognized packets of ORS; almost all had used them on some occasion and said they knew how to prepare them properly. These packets were most commonly obtained from the promoters or local health personnel who were said to provide instruction in their preparation and use. Homemade ORS, on the other hand, was totally unknown to the mothers in Las Cruces and Belice. Those in San Lorenzo and Santo Domingo were familiar with its preparation, although the recipe used is still based on the "old" version, containing bicarbonate of soda and orange juice.

The issue of feeding during and after an episode of diarrhea presents a more serious cause for concern. A number of foods were reported to be intentionally withheld, including rice, beans and potatoes in the case of San Lorenzo, as these are classified as "cold" foods believed to cause flatulence (se embotan más). This belief, of course, has some basis in scientific fact; however, as these constitute staple foods in this region, the nutritional impact of withholding the child's often primary source of protein and calories can be quite serious. In general, when those mothers interviewed note their children "lose their appetites", they reportedly do not oblige them to eat at all. Only in San Lorenzo were mothers reported to return their children to a normal, unrestricted diet following an episode of diarrhea, although none mentioned increasing feedings--either in quantity or frequency--during this period. Overall, the combination of these practices have serious implications in a

¹⁰ "Santemicina" is a chocolate-flavored preparation containing 50 mg of tetracycline--an antibiotic that is contraindicated for young children as it causes permanent damage to the enamel of adult teeth still in formation. Furthermore, the 50 mg-dose of the drug is insufficient to have a therapeutic effect on infection (25-50 mg/kg is the recommended dosage for children over 8 years of age). One dose of "Aureomicina" contains even less--15 mg. "Yodoclorina" contains 250 mg of diiodohydroxyquin, a drug used to treat amebiasis and in particular, to kill off amebic cysts. Its administration is delicate and dosage should be carefully calculated and controlled according to the weight of the child.

nation in which some 80% of the children under five years of age suffer from some degree of malnutrition.

Again, only in San Lorenzo was mothers' recognition of signs of dehydration reported to be adequate. Elsewhere, it appears likely that mothers simply do not comprehend the term "dehydration" as such, since most did recognize many of the signs indicative of the condition as being serious, and promptly seek medical attention if the child's status deteriorates or fails to improve within a few days following home treatment. It would be worthwhile, however, to further investigate the precision and adequacy of the referral criteria utilized by these mothers.

2. Immunization

In San Lorenzo, a total of 136 women in the two study communities were interviewed regarding immunization (48 home visits, and five focus groups with midwives, mothers' and 4-H clubs, and a promoter's women's group), similar to the numbers interviewed on ORT. The results of this survey are remarkable. All interviewees were reported to know that it is "good to vaccinate" their children because it "prevents disease". They responded correctly as to when and how often to administer each vaccine, including tetanus toxoid during pregnancy. They identified common side effects of each vaccine (including the fact that reactions to the oral polio vaccine are extremely rare), and indicated appropriate treatment measures. The women also knew the common name of four out of the seven vaccines. For two of the three they did not know, they were able to differentiate between them by the site of application or other distinguishing characteristics (i.e. BCG leaves a scar; polio drops are administered orally). Only the name of the vaccine against diphtheria (DPT)--the least common of the diseases--left them stumped. They did know, however, that this vaccine (commonly referred to as "triple") protects against tetanus and pertussis (whooping cough). Furthermore, they were able to correctly name several symptoms of all but tetanus and diphtheria.

Results elsewhere were far less spectacular. Most mothers interviewed did know that they should have their children vaccinated to "prevent certain diseases"--the best known being measles and pertussis (which rank amongst the top ten causes of infant mortality in the nation), and polio. In Pasaúl, however, the belief that vaccines lead to sterility is still common; and in Belice, many mothers do not vaccinate their children due to inconvenience since the nearest vaccination posts are "always located on fincas over 4 km. away". Most mothers also recognized that some vaccines can cause normal reactions in a child, usually "pain" or "fever", and treat them with baby aspirin (aspirinitas). Most believed that while it is alright to bathe a child prior to vaccination, it is not wise to do so for two or three days afterwards.

Mothers in Santo Domingo had some vague but generally accurate notions of the recommended vaccination scheme although details were sketchy with regard to age of application. On the whole, most of the other mothers interviewed had no idea at what age to vaccinate their children, what vaccines are applied, or how many doses should be administered to adequately protect the child. Some mothers stated they had been vaccinated twice during pregnancy, but they did not know what vaccine they had received or why, other than suspecting that it was to help the child to be "born healthy".

Furthermore, none of the mothers interviewed in these communities were familiar with any of the signs or symptoms of tuberculosis, diphtheria or tetanus--nor in some cases, with the fact that they are even preventable. Frank signs of measles and whooping cough, the most common of these diseases, were more widely recognized. Early diagnostic signs of polio were totally unknown, although in Las Cruces and Belice, most of the women knew someone who had suffered from the disease and were therefore familiar with its sequelae.

I. Conclusions and Implications for Action

Community members, health personnel and promoters themselves were asked to judge the "effectiveness" of the rural health promoter in each study community. Investigators did not define what they considered "effective" to be; rather, they asked each group to discuss their own interpretation of the term and the criteria by which they chose to evaluate promoter performance. Interviewees were also asked to identify what they considered to be limitations to improving promoter effectiveness, and to pose some solutions. Following is a summary of the results of these interviews.

Definitions of "Effectiveness":

Criteria used for defining this term were based on: achieving success in what is proposed; striving to improve, and share, own knowledge; providing leadership to the community; maintaining close communication with health district personnel and representatives of other development institutions; providing support and collaboration in community activities; achieving a high level of support and acceptance by community members; the existence of community awareness regarding the promoters' functions; and active participation in community development activities in general.

Interestingly, no one mentioned anything specifically related to lowering morbidity or mortality rates, or otherwise improving community health status or sanitation conditions.

Level of Effectiveness:

Based on these criteria, promoters in the four study communities in San Lorenzo and San Pedro Carchá were judged to be "effective" not only by their communities and district health personnel, but by the promoters themselves as well. In general, residents in these communities are very much cognizant of the strict resource limitations under which their promoters operate, and voiced unanimous support and approval of their activities. MOH personnel in these districts view promoters as a "tremendous source of support" for the health system, and recognize that without them, progress in achieving their own goals would be far slower and probably far less effective.

In Belice and Las Cruces, all felt that the promoters are still far too new to their roles to evaluate their effectiveness fairly. Those in Belice had yet to begin their work at the time of the field investigation. However, in the case of Las Cruces, the newness and strong organization of the community itself has already served to facilitate the initiation of activities and help establish promoters in their new roles. An additional advantage for these promoters is the wealth of development institutions operating in the community with whom they can coordinate activities. For example, growth monitoring is already being carried out in collaboration with a university nutrition student, and the planting of vegetable gardens with an agronomy student, both undertaking their rural practice.

In Sacapulas, district personnel, community members and the promoters themselves all believed that the promoters have yet to achieve their potential level of effectiveness, due primarily to the lack of support and supervision, and the material and educational resources with which to work. On the other hand, district personnel stated that promoters are an important resource, particularly in regions such as Sacapulas which are considered "areas of conflict," since these individuals are well known by their neighbors and can thus serve as bilingual interpreters, and in general assist health personnel in communicating with local residents.

Limitations:

There was virtual consensus amongst all interviewees regarding the limitations promoters are faced with. These can be summarized into three basic categories: the lack of equipment, supplies and medicines necessary to attend patient needs; insufficient training, support, and in particular, supervision; and the shortage/lack of technically accurate and up-to-date reference materials. Promoters also mentioned a shortage of time to dedicate to their communities.

Solutions:

Promoters, in particular, believe they could be far more effective in their roles, both qualitatively and quantitatively, if they were to receive the necessary technical and moral support and supervision of district personnel. The institution of monthly meetings and/or monthly supervisory visits was one of the most commonly proposed solutions.

Too, all insisted that even the most basic of equipment, supplies, medicines and educational materials would greatly facilitate the execution of the activities they are expected to carry out. Several proposed that the MOH return to its former policy of distributing the medical kits which used to be standard issue for all rural health promoters.

MOH personnel also felt that promoters need and deserve more and better incentives for their work, if not outright compensation. Suggestions included providing them with food rations such as those distributed by CARE; the payment of regular, timely and higher per diem rates for their participation in any and all training activities; and the provision of at least a minimal stipend. This last point was strongly seconded by the majority of the promoters. District personnel also recognize that increased supervision and material support would serve as an important stimulus to promoters, but generally feel constrained by their institution's own material, human and financial resource limitations.

IV. KNOWLEDGE OF IMMUNIZATION AND CONTROL OF DIARRHEAL DISEASE: RESULTS OF WRITTEN TESTS

A. The Tests:

Two written tests were developed to analyze the level of knowledge of rural health promoters with respect to immunization (EPI) and the control of diarrheal disease (ORT). These instruments were largely adapted from similar KAP questionnaires which have already been used in Guatemala, with care taken to adjust the language and presentation of the questions to the educational level of the study population. The entire PRITECH team, as well as MOH central-level participants Drs. Reina and Orellana, contributed to the final revision of the technical content and presentation of the questions. Scoring of the tests was based on current MOH norms.

Both instruments consisted primarily of multiple-choice questions, supplemented by a limited number of fill-in-the-blank responses, for a total of 18 and 20 questions, respectively, for the ORT and EPI questionnaires. (See Appendices for copies of the original Spanish versions of these tests. The English translation of each question is included in the corresponding discussion of results.)

B. Logistics:

The instruments were pretested on a small sample of promoters in San Martín Jilotepeque, Chimaltenango. The revised tests were subsequently administered during the period of field investigation in the health districts of Sacapulas, San Lorenzo and San Pedro Carchá, and prior to the field research in Santa Lucia Cotzumalguapa. Each health district assumed responsibility for calling together its promoters on the assigned date.

Due to the length of these instruments, it was decided to administer each test to only half of each of the four groups of promoters in the sample. Thus, while the participants were seated together at will, no two neighboring individuals were given tests with the same technical content. This system not only permitted project personnel to obtain a random sample of results for both tests in each of the four districts, it also prevented attempts at copying as occurred during the pre-test of the instruments.

It was also anticipated that the language barrier and low level of literacy amongst rural health promoters in the district of San Pedro Carchá would unduly affect their test results. It is unclear to what extent this may be true. Those promoters who chose to have the questions and responses translated into their native Kekchí had translators available to them.

C. Data Analysis:

Manual calculations of scores were performed on a number of the questions to provide initial baseline data and aid in determining the most appropriate format for their presentation. All raw data for both tests were subsequently entered into system files used by the Statistical Package for the Social Sciences (SPSS), operating on a Hewlett-Packard HP3000 computer system. A visual double-check was then performed to control for operator error, and frequency counts produced for both data sets to check for completeness of data entry. These counts also facilitated the formation of logical cut-off points for the presentation of test results and general background data on the promoters.

SPSS sub-programs utilized included crosstabulation, t-test and one-way. As appropriate, the chi-square, F and t values were used to test for statistical significance (employing an alpha level of 0.05). A one-way analysis of variance was also performed using Scheffé's multiple range test to compare pairs of group means.

D. Presentation of Results:

The presentation of test results is divided into three sections: a summary of general background data on the rural health promoters included in each test sample; the principal findings from each test, first as a summary of the overall test results, and then broken down by section according to subtopic.

Each of the principal findings subsections is accompanied by two types of graphic illustrations. First the overall results of that section are presented, comparing scores achieved by the samples of promoters. Then, generally following the discussion of question specific results, translations of each question are accompanied by graphs illustrating the source of error by item, presented as percent of promoters.

In interpreting the question specific graphs, it is important to recall that they represent source of error. This methodology was chosen in an effort to help identify specific areas requiring reinforcement in training. Thus, the height of the bars indicates the percent of respondents which marked an incorrect item which should have been left blank (indicated by an X), and conversely, those who failed to mark a correct item which should have been included in the response. "N/A" represents the percent of participants who did not respond to the question.

1. ORT Test¹¹

a. Promoter Profile (n=90)

health district	This 18-item written test was administered to 22 rural health promoters from the district of Sacapulas, El Quiché; 20 from San Lorenzo, San Marcos; 36 from San Pedro Carchá, Alta Verapaz; and 12 from Santa Lucía Cotzumalguapa, Escuintla, for a total sample size of 90.
gender	Males accounted for 69% of the study sample, and females for 31%.
age	<p>Age ranged from 14-59 years (average = 30). The under-18 year old, technically ineligible to be rural health promoters based on current MOH norms, accounted for 8% of this sample.</p> <p>Nearly 25% of this sample is between 18-25 years of age; over 40% is between 26-35; 17% is 36-45; and 7% is over 45 years of age. No data were available on three individuals (3.3% of the sample) taking this test.</p>
marital status	Sixty-seven percent of the sample is married (61%) or living in consensual union; 30% is single. No data were available on 3% of the study sample.
# of children	Number of children ranged from 0-10, with 32% of the sample having no children, corresponding roughly to the single population. Twenty percent has 1-3 children; approximately one quarter has 4-5 children; and nearly 15% has 6-7 children. Seven percent of the sample has more than 7 children. No data were available on 3% of the sample.
occupation	Nearly 60% of the sample is dedicated to small-scale agricultural production; another 4% is accounted for by three merchants and an evangelical minister. Virtually all females who responded to this question classified themselves as housewives, with the exception of a single midwife. No data were available on 7 individuals (8% of the sample).

¹¹ See Appendix F for a comparison of the samples of pro-motors taking this and the EPI test.

years of service

Time in service ranged from one month to 16 years. Precisely half of the sample has worked as rural health promoters for 5 years or less, with 8% having initiated their activities in the past year. One quarter of the sample has worked for 6-12 years. All of the nearly 15% with over 12 years of experience reside either in Sacapulas or in San Pedro Carchá. No data were available on 10 individuals (11% of the study sample).

last training

Nearly half of this sample stated they had received training within the month prior to administration of the questionnaire; one quarter indicated they had received training in the previous eleven months. Four participants (4.4%) responded that they had not attended a training course for two or three years.

A significantly large portion of the group (over 20%) did not respond to this question, and one may speculate that many of these 20 individuals either have received no retraining, or did so long enough ago they no longer recall precise dates.

b. Total Test Scores (Questions #1-18)

Using current MOH norms as the basis for scoring these tests, approximately two-thirds of the sample scored in the 50-74% range, with 18 promoters (20.0%) scoring below 50%. Only two health promoters scored just barely above 80%.

Total Test Scores (%):	Mean	SD	Range
Health Promoters (n=90)	59.4	11.3	31.9-81.9

No statistically significant ($p \leq .05$) difference was found to exist between mean scores for this test as a whole between promoters by district. Nor was any association detected between promoters' total test scores and age, gender, occupation, marital status, or number of children. More importantly, no significant difference was found between these scores and years of experience as promoters (ranging from one month to 16 years), or when they last received training. Of the roughly 80% that responded to this last item, nearly 75% stated they had received training in the past year.

Statistical differences did appear, however, between promoters by district, in the mean scores achieved on some sub-sections of this test as indicated by asterisks (*) in the following table:

Mean Scores by Sub-Section of Test (%)

Dangers, Causes & Prevention	82.5*
Diagnosis and Referral	77.5*
Feeding and Fluids	41.9*
Case Histories	54.2*
Preparation of ORS	65.0
Administration of ORS	23.8*

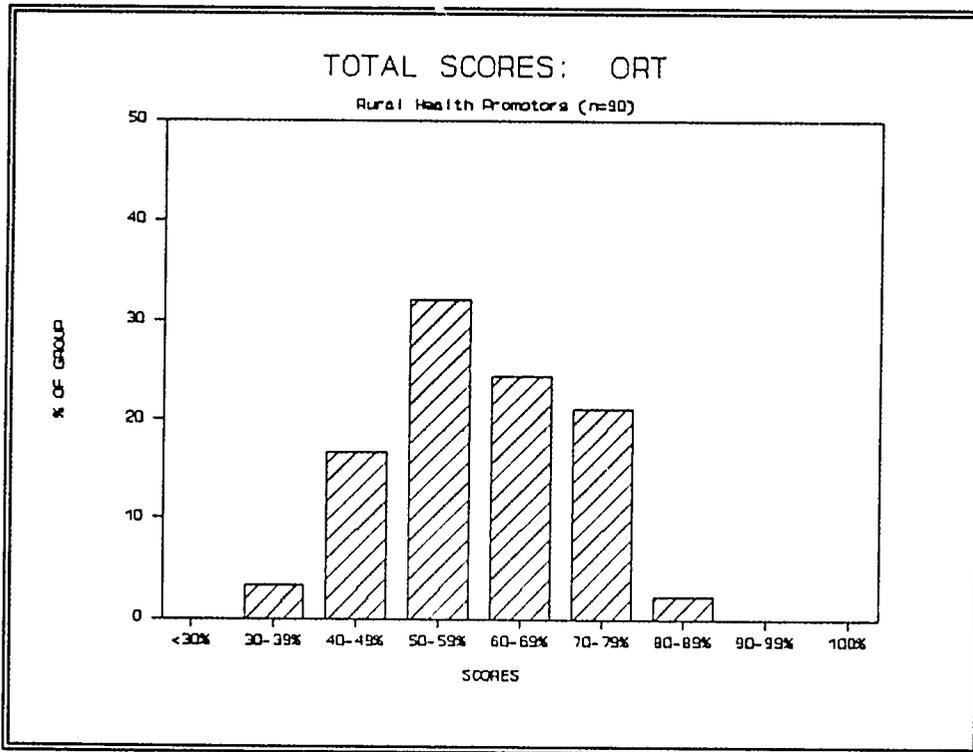


Figure 1: Total ORT Test Scores

c. The Dangers, Causes and Prevention of Diarrhea and Dehydration (Questions 1-2, 17-18)

Mean scores were the highest for this group of four questions from amongst the six sub-sections of this test, just above 80% and 90%, respectively. Three-quarters of the promoters scored above 75%, with over 10% scoring 100%. Only one promoter scored below 50%.

No two groups of health promoters were found to be significantly different.

Dangers, Causes & Prevention:	Mean	SD	Range
Health Promoters (n=90)	82.5	14.4	43.8-100

A graphic illustration of these results is presented on the following page showing the promoters' overall scores for these four questions.

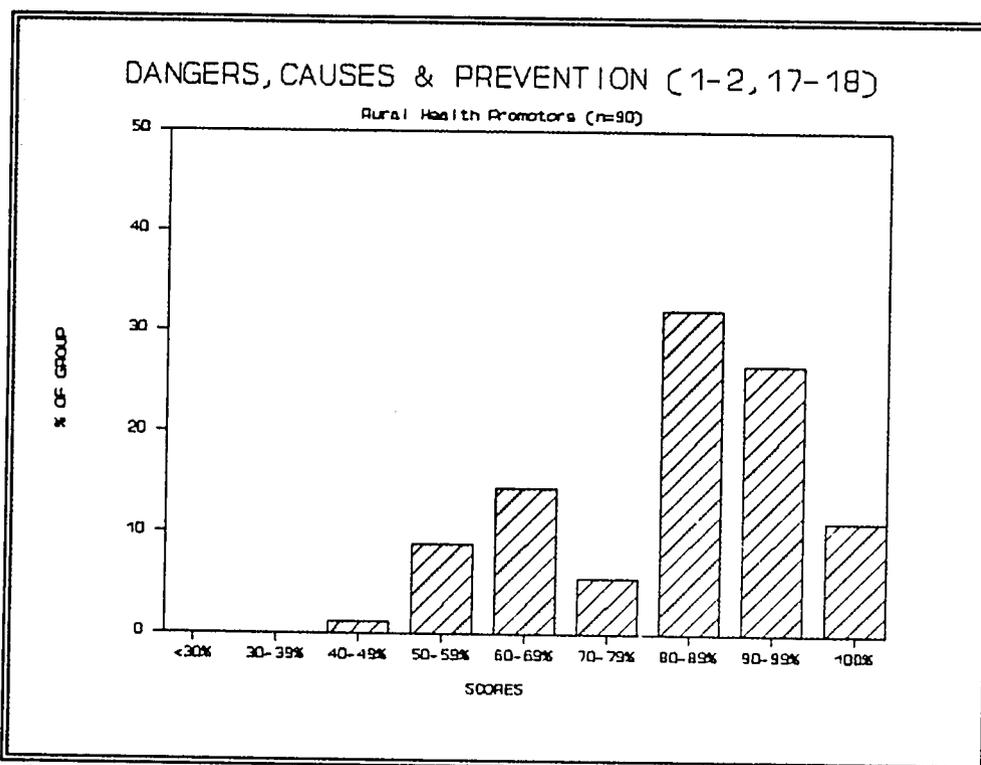


Figure 2: Dangers, Causes and Prevention of Dehydration

In spite of the generally good results on this sub-section of questions, several areas of weakness were detected, as illustrated in the question-specific graphs representing source of error presented at the conclusion of the following discussion.

Question #1: Over 20% of the promoters did not consider either malnutrition or death to be potential complications of diarrhea, Of particular concern is the fact that nearly 15% of the promoters did not recognize that diarrhea can lead to dehydration--a primary focus of diarrheal disease control efforts. A similar percent indicated that they did not consider diarrhea to be dangerous. These errors were most pronounced amongst promoters in the district of San Pedro Carchá. One promoter did not respond to this question.

Question #2: With regard to the causes of diarrhea, the range of incorrect responses by item generally ran around 10% or less, with the exception of "evil eye" being considered a cause by nearly one-third of all promoters, thus indicating the persistence of this belief amongst a significant portion of this sample.

Nearly 40% of the promoters considered "teething" a potential cause of diarrhea. This response deserves some consideration since teething may, in fact, be at least an indirect cause of diarrhea in those cases where a teething child sticks everything

in his path in his mouth, contaminated or not, to help alleviate the discomfort. Two promoters did not respond to this question.

Question #17: Knowledge of preventive measures for diarrhea was generally quite adequate although seven promoters (7.8%) neglected to mark the option dealing with "personal hygiene". All 36 promoters in the district of San Pedro Carchá, however, responded correctly to this item.

Approximately 5% of the sample of promoters neglected to include in their responses those items related to environmental sanitation and proper food preparation and storage practices. These errors were most common amongst promoters in the district of Santa Lucia Cctzumalguapa.

Question #18: Level of knowledge of preventive measures for dehydration was also generally high, with the exception of the prevalence of the belief that a mother should massage ("sobar") her child's stomach and give him medicine to stop the diarrhea (roughly one-third of the promoters). Six promoters (6.7%) also responded that breastfeeding should be withheld until the episode of diarrhea has passed.

Importantly, only two promoters (2.2%) failed to indicate that a mother should give her child plenty of fluids as an appropriate measure for preventing dehydration. Two promoters did not respond to this question.

NOTE: In interpreting the following graphs, it is important to note that they represent **source of error**. Thus, the height of the bars indicates the percent of respondents which **marked an incorrect** item which should have been left blank (indicated by X), and conversely, those who **failed to mark a correct** item which should have been included in the response. "N/A" represents the percent of participants who did not respond to the question.

Again, care should be taken in making visual comparisons between the percent of promoters and MOH personnel achieving a particular score given the difference in sample size.

1. Why do you think diarrhea can be dangerous? (Underline the correct answer or answers.)
- A. Diarrhea is dangerous because it can cause malnutrition.
 - B. Diarrhea is dangerous because it can cause dehydration.
 - C. Diarrhea is dangerous because it can lead to death.
 - X D. Diarrhea is not dangerous since it is common amongst both children and adults.

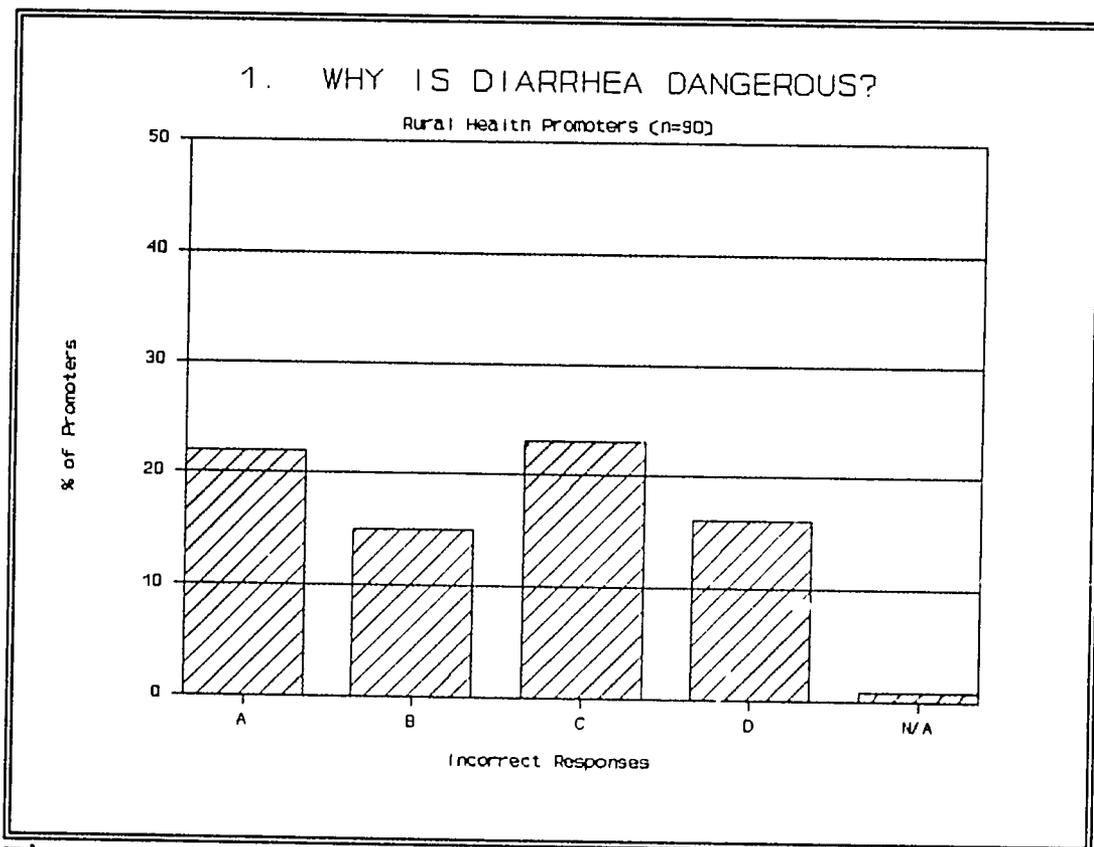


Figure 3: The Dangers of Diarrhea

2. Which of the following situations can cause diarrhea?
(Underline the correct answer or answers.)
- A. The mother does not wash her hands before preparing her child's food.
 - B. The child crawls on the floor with the animals.
 - C. The mother does not cover the food, and flies and cockroaches get into it.
 - X** D. The child gets evil eye.
 - E. The mother prepares her child's food with dirty water.
 - X** F. The child is teething.
 - G. The mother does not wash the fruits and vegetables her child eats.
 - H. The child puts his dirty fingers in his mouth.

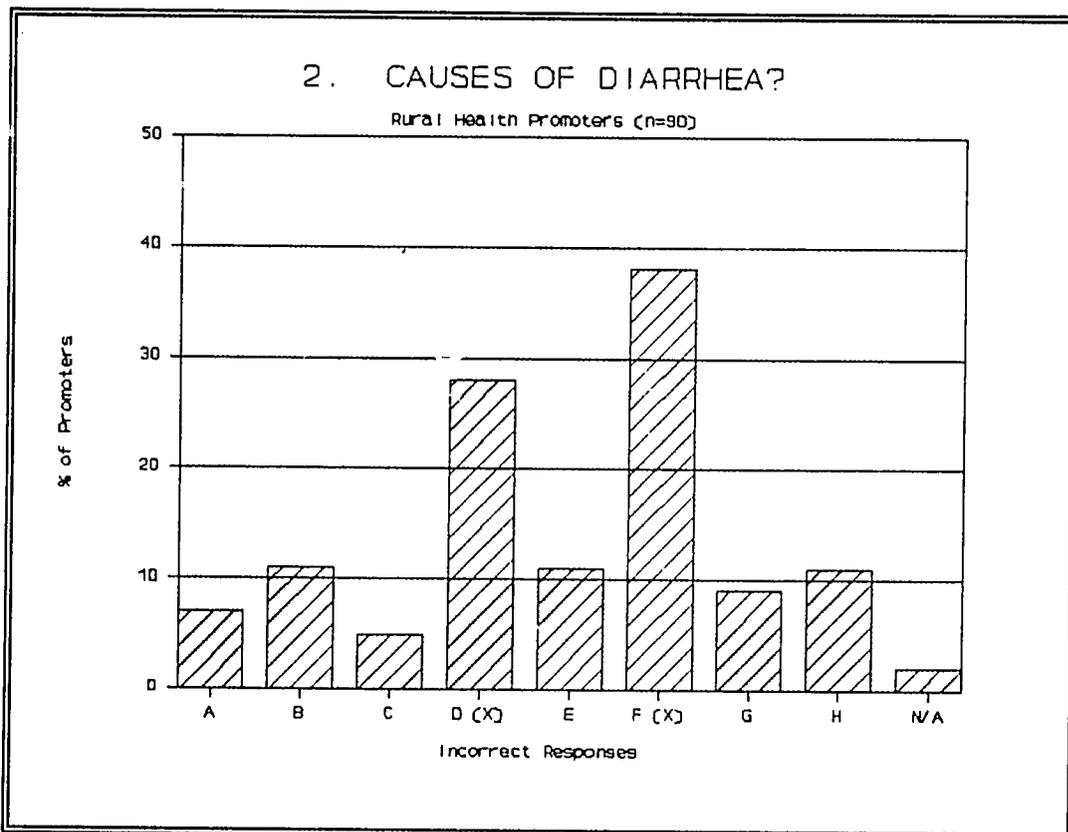


Figure 4: The Causes of Diarrhea

17. What should you advise a mother to do to help prevent her children from getting diarrhea? (Underline the correct answer or answers.)
- A. The mother should keep the house clean, and the animals outside.
 - B. The mother should take great care with the personal hygiene of the whole family.
 - C. The mother should maintain good hygiene practices in the preparation of food.
 - D. The mother should keep food and dishes covered.

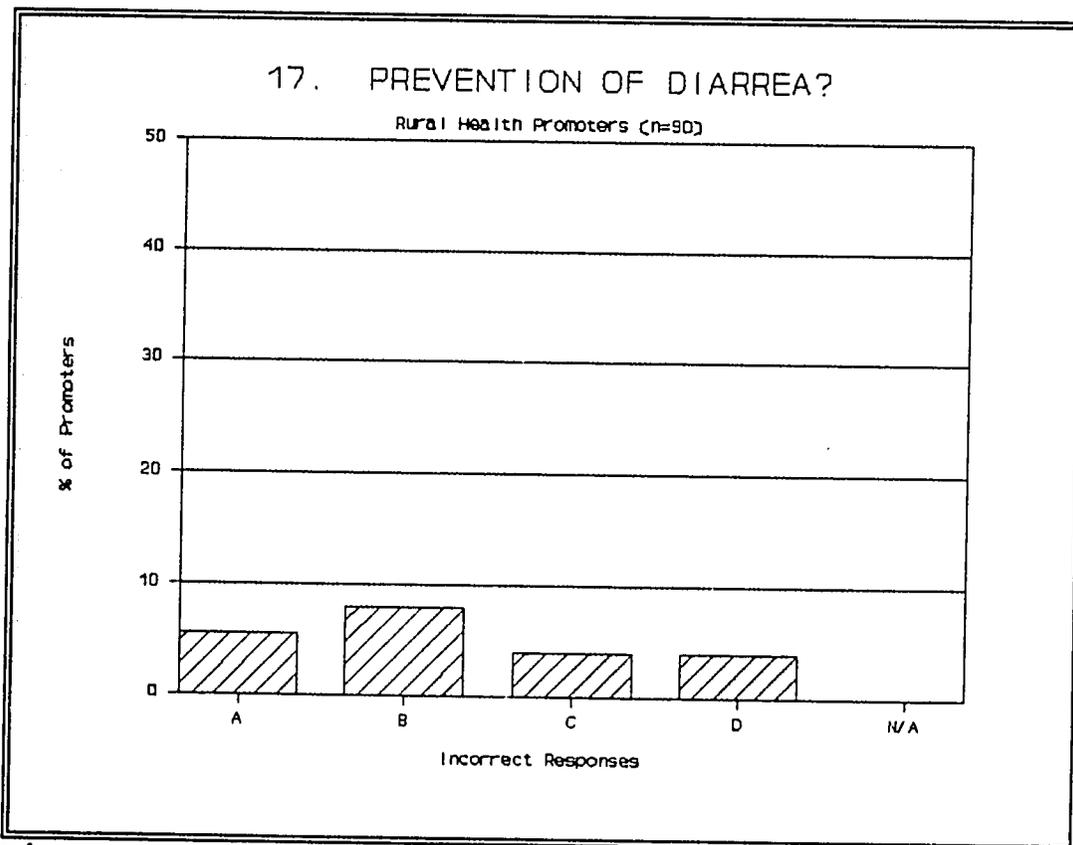


Figure 5: The Prevention of Diarrhea

18. What should a mother do to prevent her child from becoming dehydrated when he has diarrhea? (Underline the correct answer or answers.)
- A. She should give him plenty of liquids from the time the diarrhea begins.
 - B. If the child is still breastfeeding, she should breastfeed him frequently.
 - X C. She should massage his stomach, and give him medicine to stop the diarrhea.
 - X D. She should stop breastfeeding the child until he no longer has diarrhea.

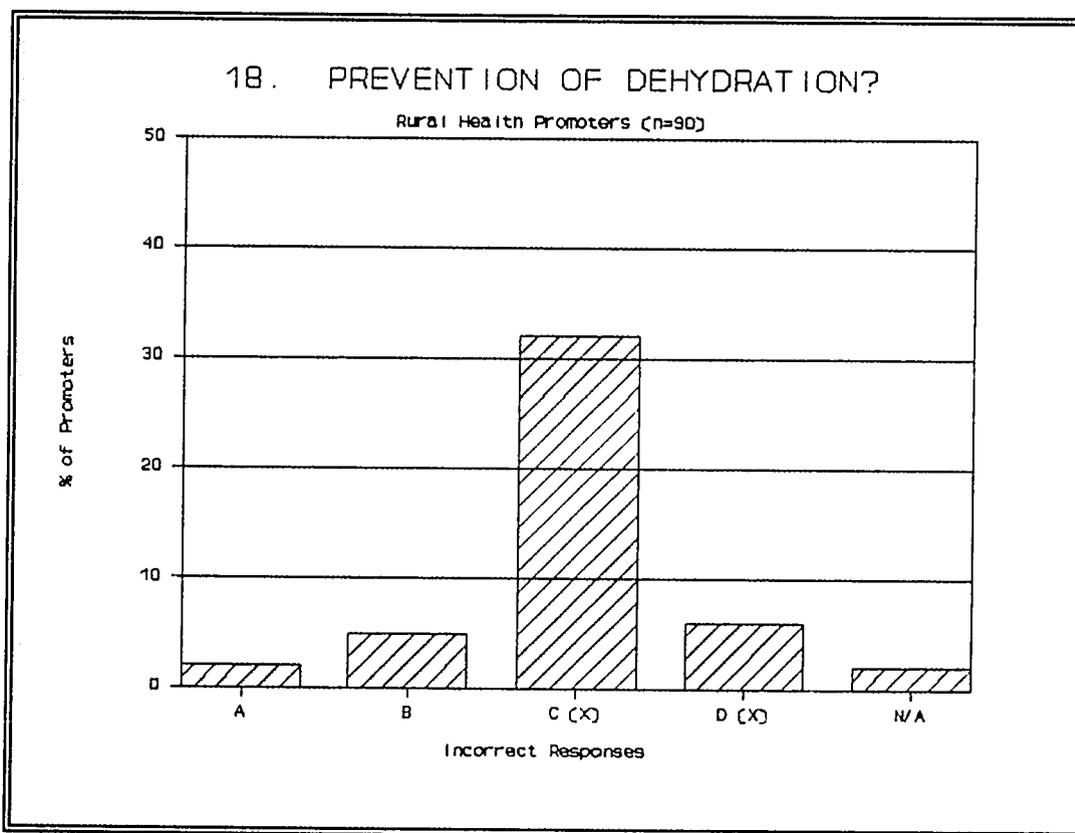


Figure 6: The Prevention of Dehydration

d. Diagnosis and Referral (Questions #3-4, 12)

Although there exists a wide variation in individual scores on this section, mean scores for promoters as a group are relatively high. Over two-thirds scored above 75% on these three questions. One-quarter scored 100%--the modal score for this group--and the highest percentage of promoters to achieve this score on any of the sub-sections of the test. Only seven promoters (7.8%) scored below 50%. A statistical difference does exist, however, between promoters' scores by district.

Diagnosis & Referral (%):	Mean	SD	Range
Health Promoters (n=90)	77.5	20.8	8.3-100
Sacapulas (n=22)	77.5	15.8	41.7-100
San Lorenzo (n=20)	65.0	25.0	8.3-100
San Pedro Carchá (n=36)	86.7	17.5	41.7-100
Santa Lucía Cotz. (n=12)	73.3	17.5	33.3-100

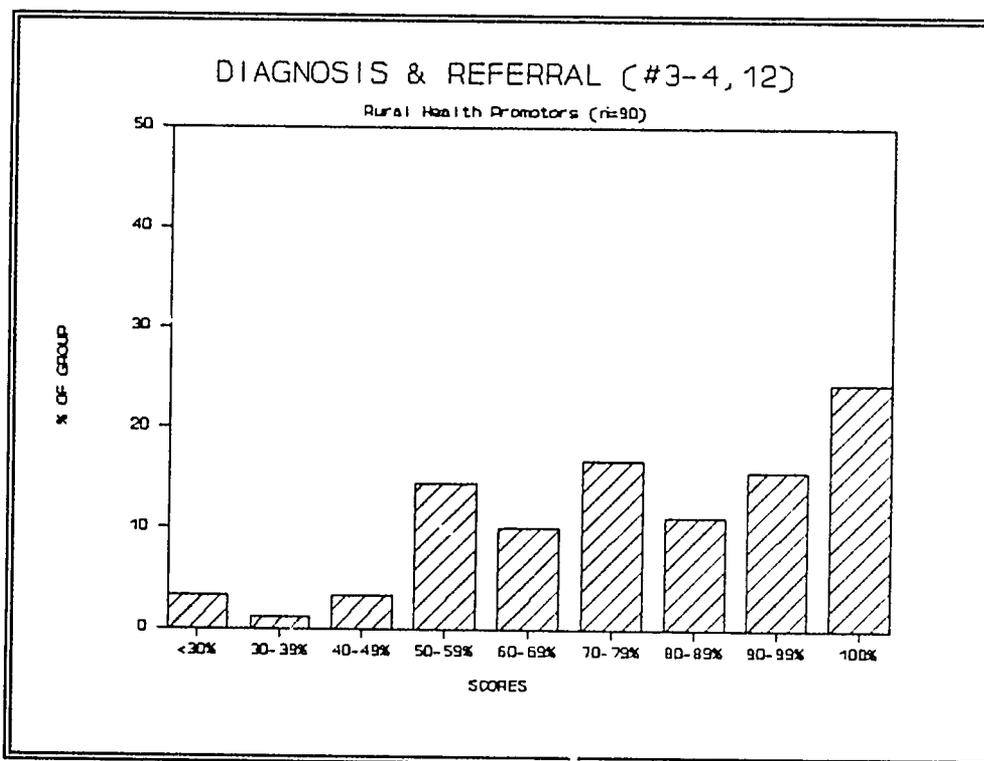


Figure 7: Scores on Diagnosis and Referral

Question #3: Although the promoters' new training manual¹² does not specifically present a diagnostic plan for promoters to follow in analyzing a case of diarrhea and degree of dehydration, most promoters seem to have a fairly good grasp of the kinds of questions one should ask to reach a tentative diagnosis.

The item which caused the most difficulty for the promoters was the one which asked whether the child is "wetting his diapers less than usual" (option D). The intent of this item was to identify a decrease in urine output as a sign of dehydration, but the phrasing may have been too vague or colloquial for the participants to have made the desired connection. Over 50% of the promoters in all four districts neglected to mark this item.

Question #4: Overall, the level of knowledge of signs of dehydration was fairly high amongst promoters. However, three of the eight items under this question caused some difficulty. Over 20% of promoters failed to mark option B ("the child is urinating less than usual") as a sign of dehydration. This result is consistent with the fact that the same concept also presented difficulty in the previous question.

Over 30% neglected to recognize irritability (option C) as a possible sign of dehydration. This is one of the signs listed in the promoters' new manual, but it is not included in the previously used PRINAPS version. This result may, therefore, be a reflection of the version of the manual, if any, used in training. In fact, amongst the four districts, the promoters in Santa Lucia Cotzumalguapa (where the "old" version of the manual has been used in training as recently as August of this year) were the most apt to get this item wrong. Those in Sacapulas, where field investigators were told that no manuals have been distributed in training, had the second highest percent of incorrect responses to this item.

The skin-fold test (option H) was also not widely recognized by promoters (over 35%) as a useful means of determining the presence of dehydration, though it is mentioned in both versions of the manual. Again, the promoters in Sacapulas, where evidently no manuals have been used, scored the lowest on this item.

Another explanation of this result may be that, of the various signs and symptoms of dehydration, this one is perhaps the most difficult to conceptualize in the absence of personal experience. If promoters have received no "hands-on" practice in examining a dehydrated child, it may be difficult for them to take this piece of information beyond the theoretical level.

¹² Guía para el Personal Voluntario en la Prevención y Tratamiento de las Diarreas. Div. de Vigilancia y Control de Enfermedades, Div. de Recursos Humanos/DGSS/MSPAS. Guatemala, Dic. 1987.

Question #12: Recognition of referral symptoms was also generally quite good. The only item in which incorrect responses amongst promoters exceeded 20% was that related to "high fever"-- an important finding programmatically given that this is a sign which should prompt referral regardless of its cause. It is also noteworthy that eight promoters did not respond to this question.

The promoters in San Lorenzo had the most difficulty with all four items of this question, followed by Santa Lucía Cotzumalguapa; those in San Pedro Carchá generally scored the highest.

NOTE: All of the response options presented under the following three questions are correct and therefore should have been marked by the participants. Thus, the following graphs illustrate the percent of respondents who neglected to mark a given item.

3. Which of the following questions should you ask a mother when her child has diarrhea? (Underline the correct answer or answers.)
- A. How many stools does the child pass a day?
 - B. Is the child vomiting?
 - C. Is the child drinking more fluids than usual?
 - D. Is the child wetting his diapers less than usual?

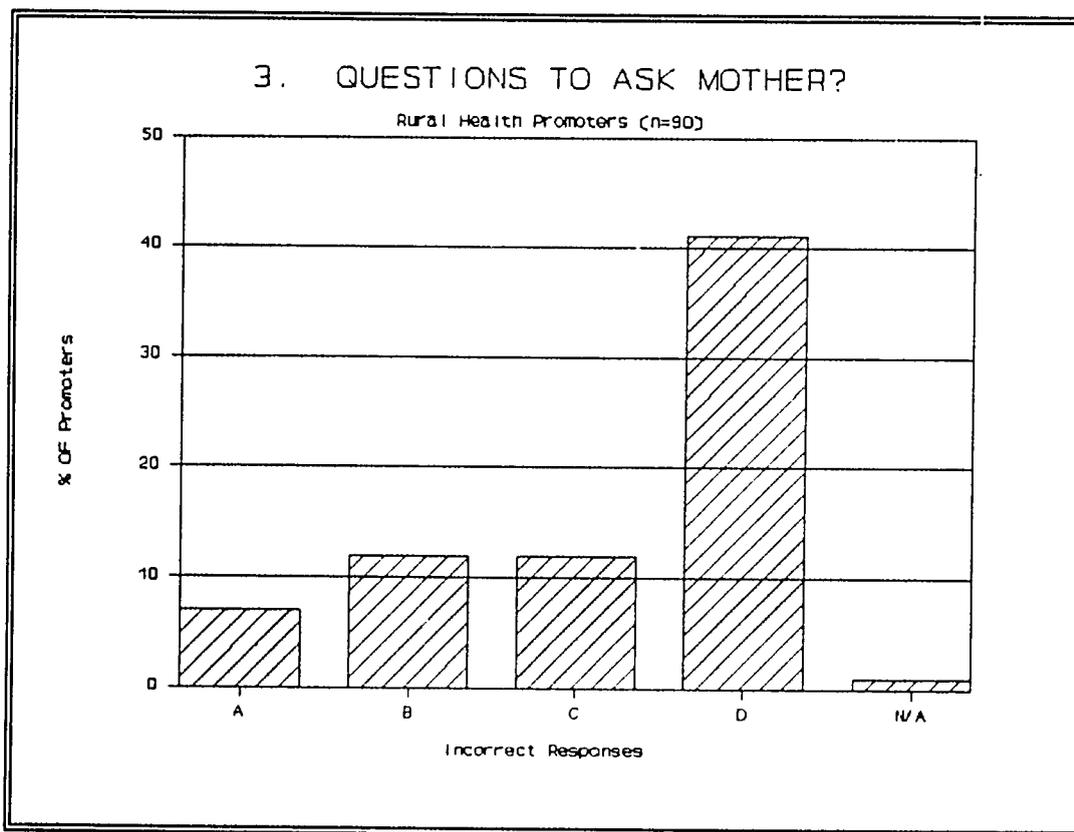


Figure 8: Questions to be Asked of the Mother

4. Which of the following are signs of dehydration when a child has diarrhea? (Underline the correct answer or answers.)
- A. The child is thirstier than usual.
 - B. The child is urinating less than usual.
 - C. The child is irritable.
 - D. The fontanelle is sunken in very young children.
 - E. The child cries without tears.
 - F. The child's eyes are sunken in.
 - G. The child's mouth and tongue are dry.
 - H. A fold made in the child's skin returns to its normal form slowly.

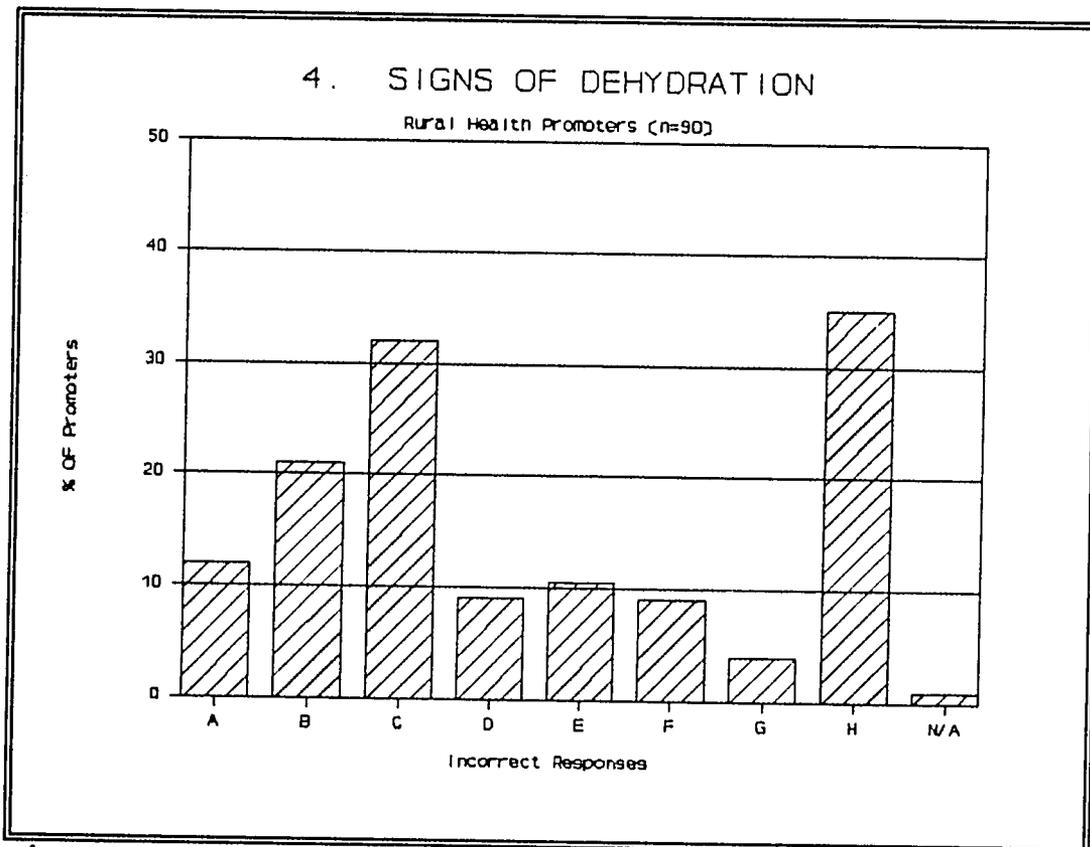


Figure 9: Important Signs of Dehydration

12. When should a mother take her child with diarrhea to the health service? (Underline the correct answer or answers.)
- A. When the child vomits frequently.
 - B. When there is blood or mucous in the child's stools.
 - C. When the child has a high fever.
 - D. When the child cannot or will not breastfeed or take liquids.

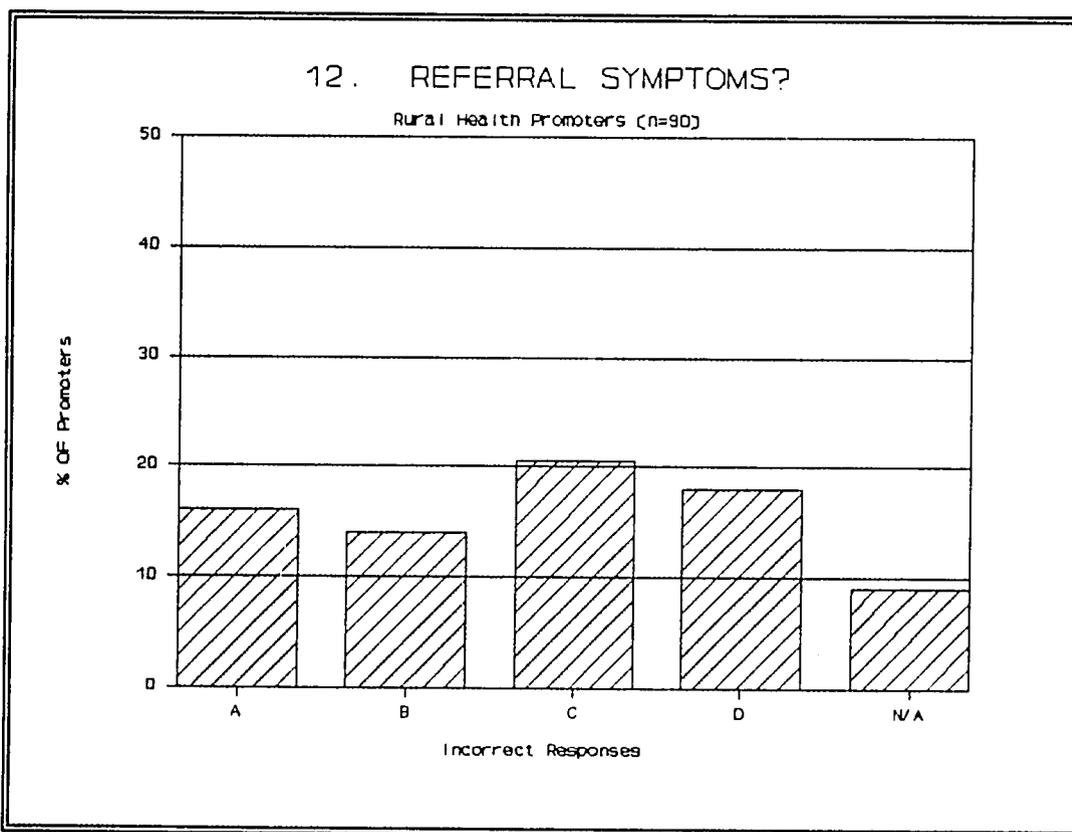


Figure 10: Symptoms for Referral to a Health Service

e. Feeding and Fluids (Questions #5-8)

This group of four questions presents the greatest cause for concern amongst the six sub-sections of this test, since adequacy of knowledge regarding administration of fluids and feeding practices during and after an episode of diarrhea may potentially have a serious and direct impact on a child's nutritional status. Nearly one-half of the promoters scored below 50% on this group of questions. Only three promoters (3.3%) scored 100%.

A statistically significant difference exists between the mean scores for this section by district.

Feeding and Fluids (%) :	Mean	SD	Range
Health Promoters (n=90)	41.9	31.3	0-100
Sacapulas (n=22)	28.1	35.0	0-93.8
San Lorenzo (n=20)	61.9	25.6	0-100
San Pedro Carchá (n=36)	39.4	28.8	0-100
Santa Lucia Cotz. (n=12)	41.3	23.8	0-75

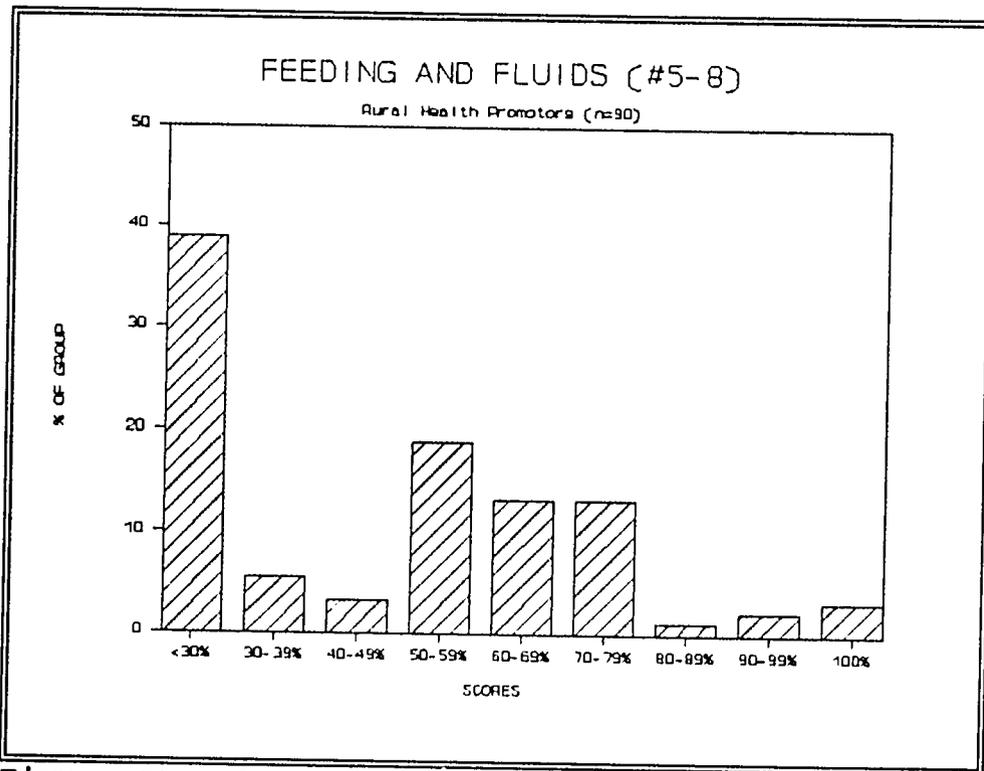


Figure 11: Scores on Feeding and Fluids

As the following graphics representing source of error illustrate, the majority of participants responded that a mother should continue breastfeeding, feeding and giving fluids "as usual" when her child has diarrhea (Questions #5-7, response option A).

This response, though incorrect, is consistent with the educational messages transmitted in the promoters' new training manual,¹³ which states only "do not suspend breastfeeding or meals"; "continue breastfeeding and the use of liquids available in the home"; and "continue feeding and giving liquids". Similar messages are contained in the PRINAPS training materials used previously. Nowhere in either manual is it stated that the breast should be given more often, that fluids should be increased, or that the number of feedings (though in smaller portions) should be augmented during an episode of diarrhea. The issue of feeding following an episode of diarrhea (Question #8) is not addressed in either manual.

These messages are also inconsistently presented in the MOH's new normative manuals for its institutional personnel,^{14 15} with instructions sometimes specifying an "increase", and at other times stating only to "continue" or "not suspend".

Although it was explicitly stated in all four questions that only one response should be marked, the majority of the promoters indicated more than one, most commonly the combination of options A and B (to "continue as usual" and to "increase", respectively). This pattern would seem to suggest that at least some of the promoters are, in fact, aware of current MOH norms covering this material, but a significant level of confusion exists between what is stated in their manuals and messages they may have received from other sources.

The most disturbing finding in this section is the fact that between one-quarter to one-third of the promoters indicated a "reduction in" or "withholding of" breastfeeding, fluids, or food as appropriate treatment during an episode of diarrhea. Furthermore, over 10% of the promoters indicated that less food than usual should be given a child following an episode of diarrhea in order to "rest the stomach", and 40% indicated that only soups and "atoles" (a thick gruel-like drink) should be given.

Three promoters (3.3%) did not respond to Question #6 related to the administration of fluids, and one did not answer Question #7 regarding feeding practices during an episode of diarrhea.

¹³ Guía para el Personal Voluntario en la Prevención y Tratamiento de las Diarreas. Div. de Vigilancia y Control de Enfermedades, Div. de Recursos Humanos/DGSS/MSPAS. Guatemala, Dic. 1987. pp. 3, 9-10.

¹⁴ Manual de Normas y Guías de Atención Materno Infantil. Depto. Materno-Infantil, DGSS/MSPAS. Guatemala, 1988. pp. 106, 109, 121, 212-213.

¹⁵ Módulo Integrado de Supervivencia Infantil. MSPAS/INCAP. Guatemala, 1988. pp. 141, 143, 151.

5. Which of the following is the best advice for you to give a mother with regard to breastfeeding her child when he has diarrhea? (Mark only one answer.)

- A. She should breastfeed her child as usual.
- B. She should breastfeed her child more often than when he does not have diarrhea.
- C. She should breastfeed her child less than usual.
- D. She should stop breastfeeding her child until he no longer has diarrhea.

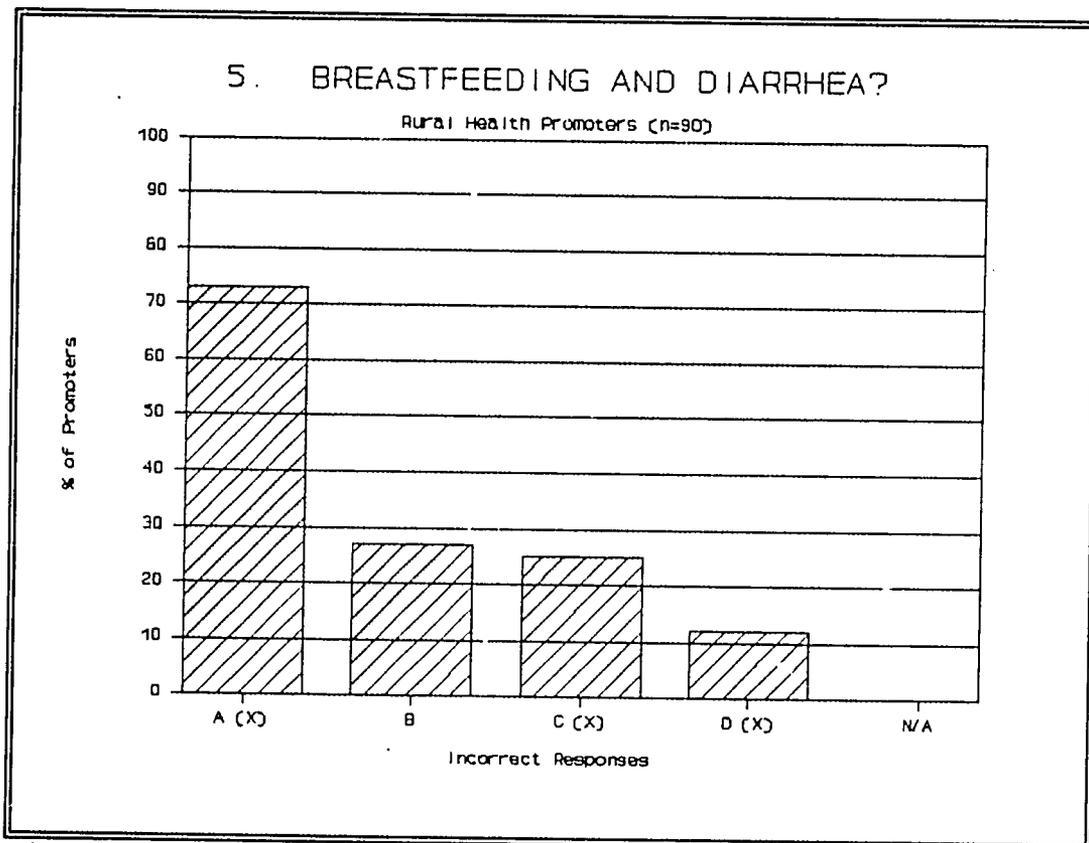


Figure 12: Breastfeeding--Advice During Diarrhea

6. How should a mother give liquids to her child when he has diarrhea? (Mark only one answer.)

- A. She should give her child the same amount of liquids as usual.
- B. She should give her child more liquids than when he does not have diarrhea.
- C. She should give her child less liquids than usual.
- D. She should stop giving her child liquids until he no longer has diarrhea.

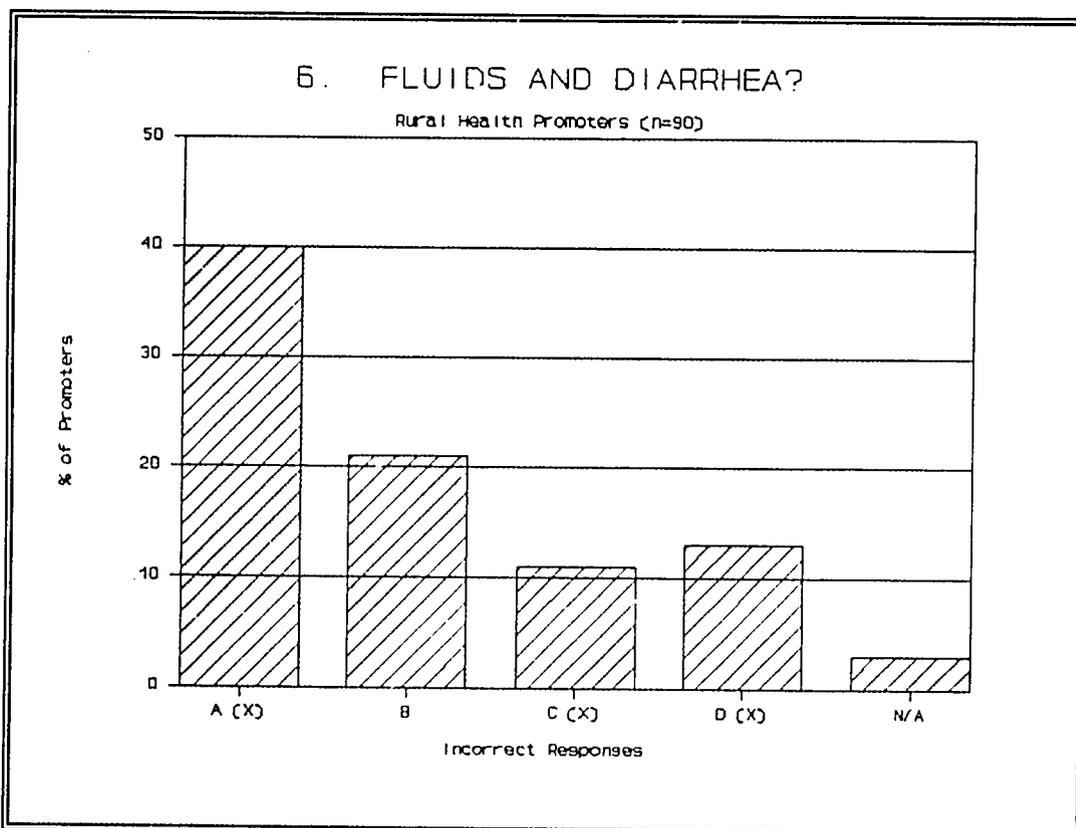


Figure 13: The Administration of Fluids During Diarrhea

7. Which of the following is the best advice for you to give a mother with regard to feeding her child when he has diarrhea? (Mark only one answer.)

X A. She should feed her child as usual.

B. She should give her child smaller, but more frequent feedings.

X C. She should feed her child less than usual.

X D. She should stop feeding her child until he no longer has diarrhea.

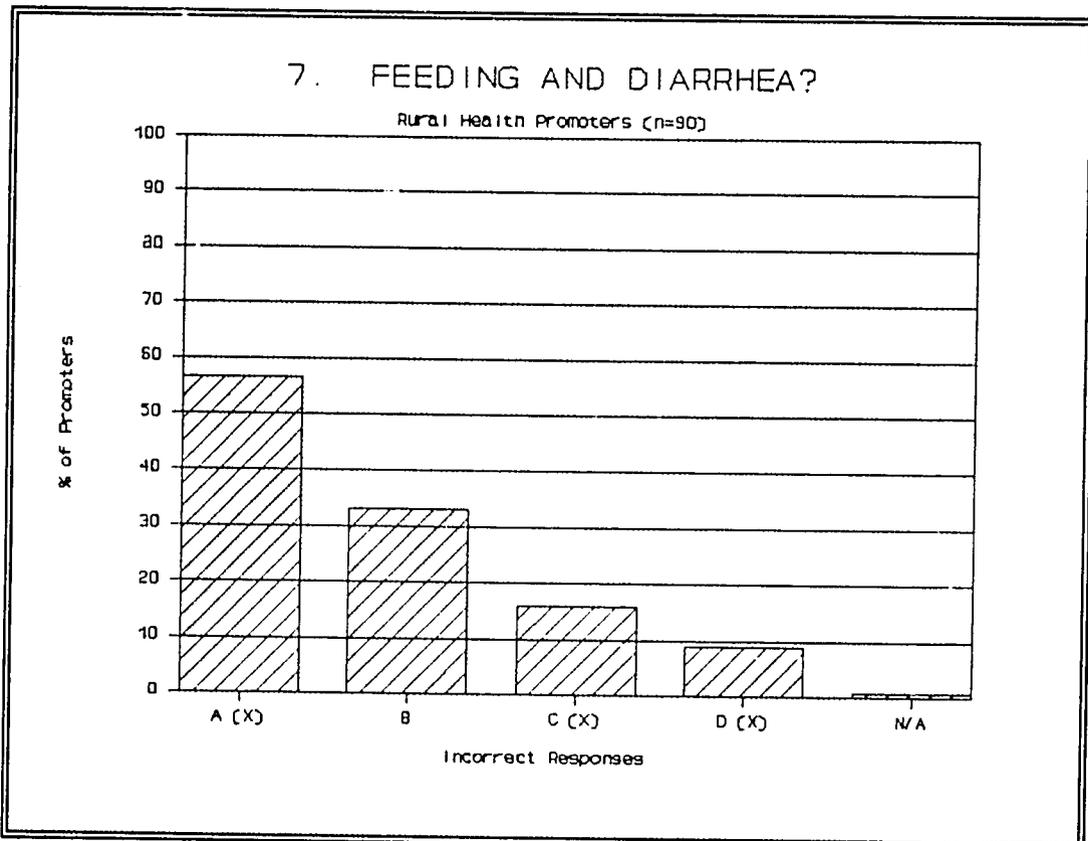


Figure 14: Feeding During Diarrhea

8. When a child no longer has diarrhea, how should his mother feed him? (Mark only one answer.)
- A. She should feed him the same amount as usual.
 - B. She should give him an extra meal a day for two weeks.
 - C. She should feed him less than usual to give his stomach a rest.
 - D. She should give him only soups and atoles.

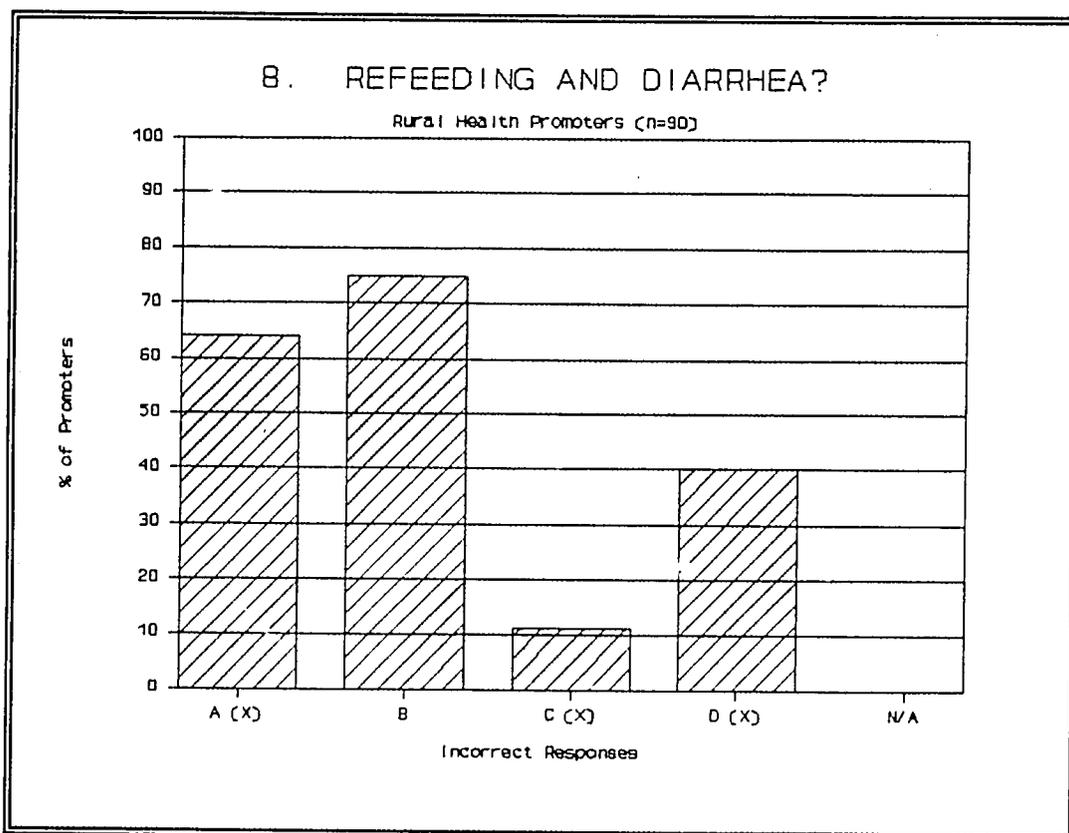


Figure 15: Feeding After Diarrhea

f. Case Histories (Questions #9-11)

The intent of these three questions was to determine to what extent participants in this study are able to differentiate between degrees of dehydration, and apply the treatment plan most appropriate to the case. The questions were phrased in terms of simulated real-life situations a promoter might encounter in the course of making home visits. It was specified that only one response was to be marked for each question, according to what the respondent considered to be the most appropriate advice to give the mother, with the options being identical for each of the three cases. Scoring was then based on current MOH institutional norms, using the "Plan A/B/C" scheme matching treatment to severity of dehydration.

Results based on this scoring system are low for this section as a whole. However, it is important to note that many of the incorrect responses were errors of commission rather than omission. In effect, participants commonly got ahead of themselves in the treatment plan. For example, referring a patient with signs of only mild-moderate dehydration to the health service as soon as possible was a common response.

Too, the vast majority of respondents marked more than one answer in spite of instructions. The fact that many marked the combination of "increase fluids" (option A), "give ORS" (option C), and "refer" (option D), suggests that while these individuals are familiar with acceptable treatment measures, they are unable to differentiate adequately according to severity of the case. This result was not unexpected, given that the Plan A/B/C scheme is not presented in the promoters' training manuals.

On the other hand, a number of participants also marked all, or nearly all, of the eight response options presented. In contrast to the previous example where respondents at least seem to have a good grasp of what is acceptable treatment under some circumstance, this second case appears to imply no clear understanding whatsoever of how to handle a case of diarrhea regardless of the presence or severity of dehydration.

As illustrated by the following graphic representations of incorrect responses by question and item, there also exist some misconceptions about appropriate treatment which deserve attention, most notably the belief that antidiarrheics and Vitamin B injections should be prescribed.

Too, nearly 20% of the promoters indicated that breastfeeding should be suspended for a child with diarrhea but without signs of dehydration; approximately 10% indicated that they would advise withholding the breast from a child suffering some degree of dehydration. Five of the promoters (5.6%) would prescribe no treatment whatsoever for a child presenting no signs of dehydration. Some of these responses, of course, are accounted for by those individuals who marked all or nearly all of the

eight options presented. Two promoters (2.2%) did not respond to Question #9 (diarrhea with-out signs of dehydration).

Statistically significant differences were found to exist in mean scores between promoters by district.

Case Histories (%):	Mean	SD	Range
Health Promoters (n=90)	54.2	25.0	0.0-100
Sacapulas (n=22)	44.2	20.8	0.0-100
San Lorenzo (n=20)	47.5	20.0	16.7-100
San Pedro Carchá (n=36)	65.8	26.7	16.7-100
Santa Lucia Cotz. (n=12)	51.7	17.5	33.3-75.0

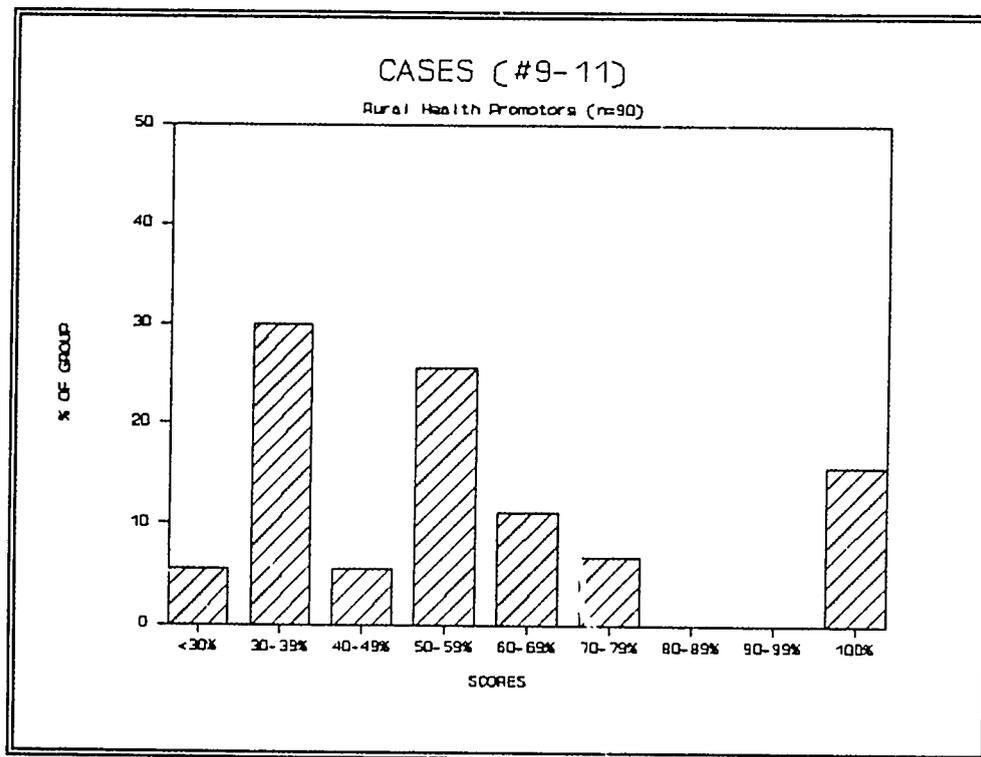


Figure 16: Scores on Case Histories

9. When Carlitos, Marta's son, is 9 months old, he gets diarrhea. In the home visit you make to Marta's house, you find Carlitos is very active. His mouth and tongue are moist as usual. His eyes look normal, and when he cries he has tears. In addition, his fontanelle is also normal, or in other words, it is not sunken in.

Which of the following is the best advice you can give Marta in this case? (Mark only one answer.)

- A. Marta should give Carlitos more liquids than usual.
- X B. Marta should stop breastfeeding Carlitos until he no longer has diarrhea.
- X C. Marta should give Carlitos homemade or packaged oral rehydration solution.
- X D. Marta should take Carlitos to the health service as soon as possible.
- X E. Marta should buy medicine to stop the diarrhea.
- X F. Marta should give him a Vitamin B injection.
- X G. Marta should give him antibiotics (penicillin).
- X H. Marta doesn't need to do anything, since diarrhea is common amongst small children and sometimes goes away by itself.

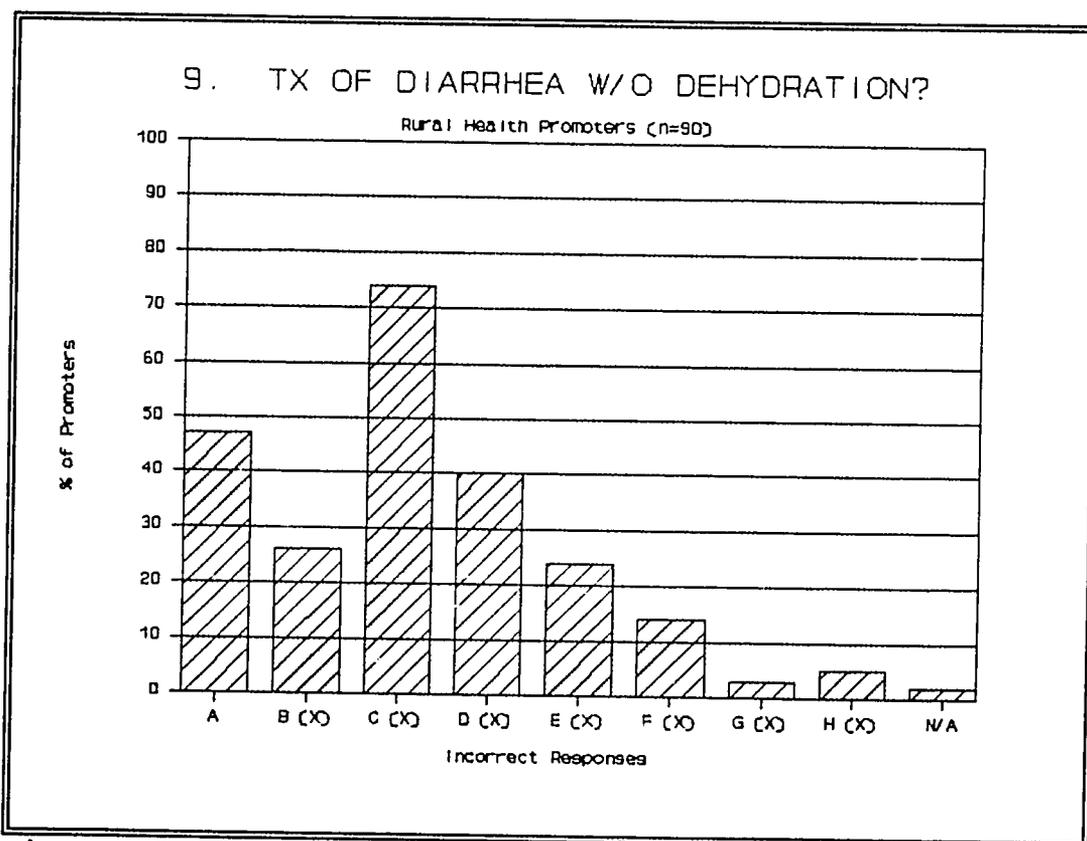


Figure 17: Treatment of Diarrhea Without Dehydration

NOTE: X indicates incorrect responses.

10. You make another home visit and find that the youngest child has had diarrhea for two days. The child is irritable, and when he cries he has no tears. His mouth and tongue are dry, and he is quite thirsty.

Which of the following is the best advice you can give the child's mother in this case? (Mark only one answer.)

- A. She should give him more liquids than usual.
- B. She should stop breastfeeding him until he no longer has diarrhea.
- C. She should give him homemade or packaged oral rehydration solution.
- D. She should take him to the health service as soon as possible.
- E. She should buy medicine to stop the diarrhea.
- F. She should give him a Vitamin B injection.
- G. She should give him antibiotics (penicillin).
- H. She doesn't need to do anything, since diarrhea is common amongst small children and sometimes goes away by itself.

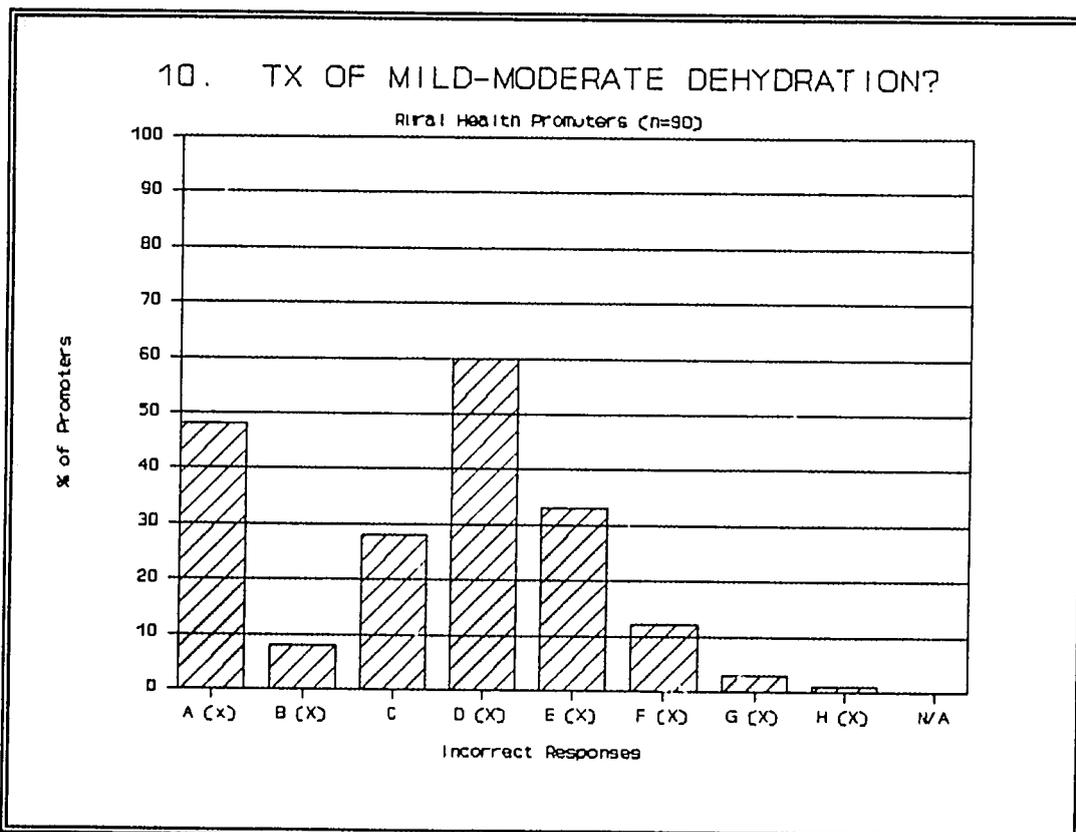


Figure 18: Treatment of Diarrhea With Mild to Moderate Dehydration

11. In another home you find a child who has had diarrhea for several days and he continues to soil his diapers frequently. He is no longer breastfeeding, and it is difficult to wake him up. Also, he didn't urinate all night long and his eyes are very dry and sunken in.

Which of the following is the best advice you can give the child's mother in this case? (Mark only one answer.)

- X A. She should give him more liquids than usual.
- X B. She should stop breastfeeding him until he no longer has diarrhea.
- X C. She should give him homemade or packaged oral rehydration solution.
- D. She should take him to the health service as soon as possible.
- X E. She should buy medicine to stop the diarrhea.
- X F. She should give him a Vitamin B injection.
- X G. She should give him antibiotics (penicillin).
- X H. She doesn't need to do anything, since diarrhea is common amongst small children and sometimes goes away by itself.

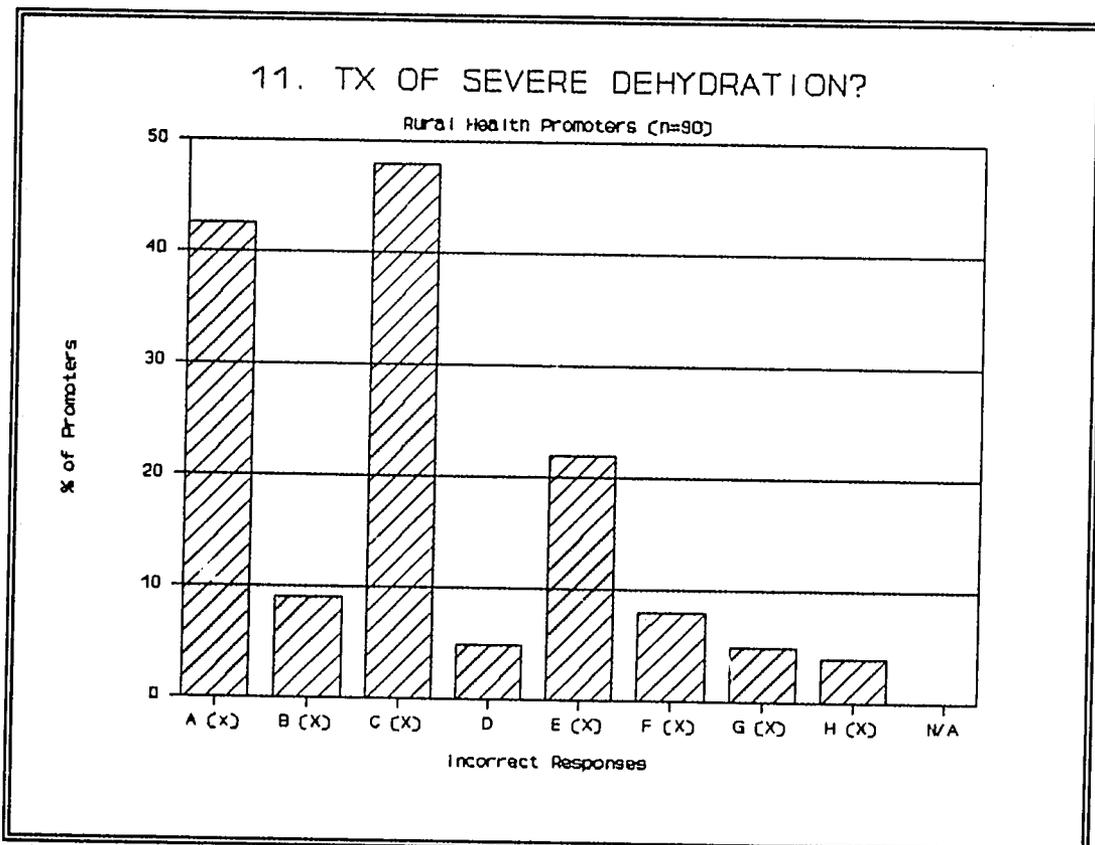


Figure 19: Treatment of Diarrhea With Severe Dehydration

**g. Preparation of Homemade and Packaged ORS
(Questions #13-14)**

There was no significant difference in mean scores between promoters by district.

Preparation of ORS (%) :	Mean	SD	Range
Health Promoters (n=90)	65.0	18.8	0.0-100

Only three promoters (3.3%) answered both of these questions correctly, and 10 percent obtained a combined mean score below 50% for these two questions.

As can be appreciated from the following table, averaging the scores for these two questions masks a serious deficiency in level of knowledge of the preparation of homemade, as compared to packaged, oral rehydration salts, based on current MOH norms.

	Homemade ORS (%)	Packaged ORS (%)
Mean	45.0	87.5
SD	25.0	25.0
Range	0-100	0-100

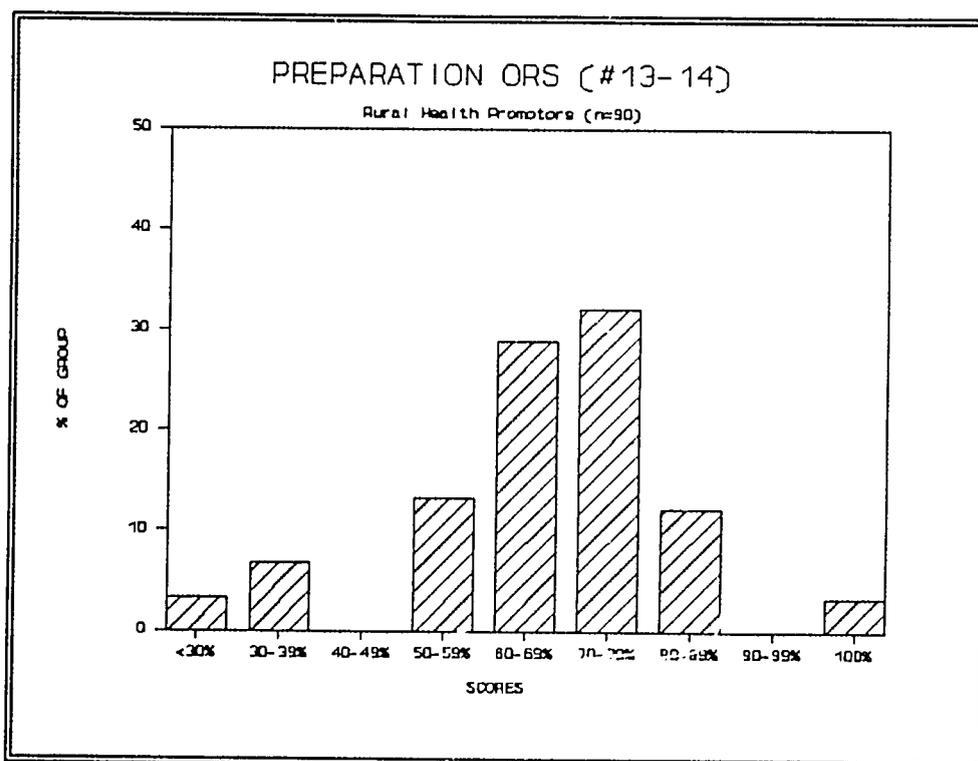


Figure 20: Scores on the Preparation of ORS

13. Write in the spaces provided the amount of the following ingredients to be used in preparing 1 liter of homemade oral rehydration solution.

Clean water: _____ (1 liter) _____
 Salt: _____ (1 teaspoon) _____
 Sugar: _____ (8 teaspoons) _____
 Other ingredient: _____ (X - none) _____

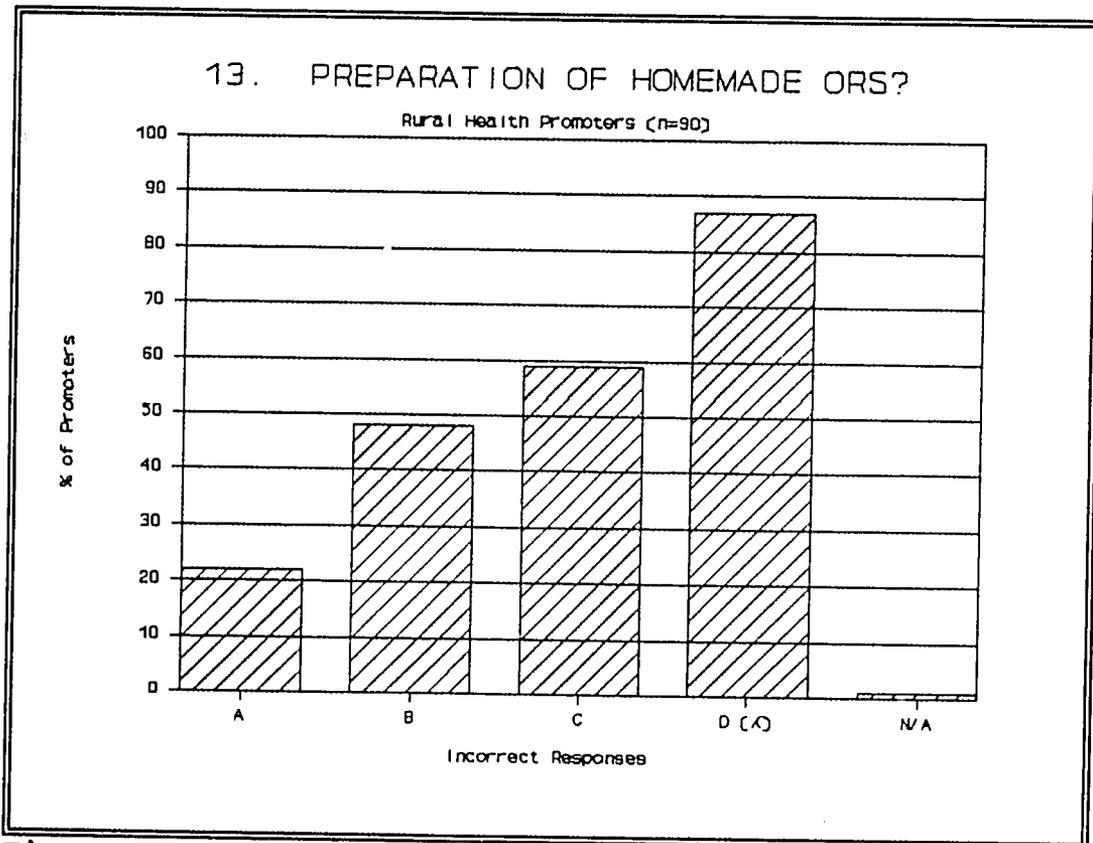


Figure 21: The Preparation of Homemade ORS (Suero Casero)

Question #13 - Homemade ORS

As will be noted from the previous graph, the percent of incorrect answers increases progressively in response to the appropriate amount of water, salt, sugar and "other ingredients" to be added to homemade ORS, based on current MOH norms.

Twenty-one promoters (23.3%) responded incorrectly to the amount of water to add; 43 (47.8%) responded incorrectly regarding the proper amount of salt to be added. Fifty-three promoters (58.9%) indicated an incorrect amount of sugar; all 20 health promoters in San Lorenzo responded incorrectly to this last item.

Eighty promoters (88.9%) responded, incorrectly according to current MOH norms, that some other ingredient should also be added to the preparation. In Sacapulas, 21 out of the 22 promoters responded incorrectly to this item, with the remaining one not responding to this question at all.

The following analysis of responses based on current (*) and past (**) norms is illustrative of the problems encountered. Most notable is the range of responses to each item, especially with regard to the amount of sugar to be added.

Several of the responses, though not necessarily great in number, would result in a potentially fatal mixture for a child. In particular, three promoters indicated that they would add "one tablespoon" of salt. Thirteen personnel indicated that only "3 glasses of water" should be added; one promoter indicated "3-4 glasses", and another answered "4 glasses, then boil" which would also likely result in an overly concentrated preparation after evaporation, depending on glass size used (see discussion of water-vessel size included in "Conclusions and Implications for Action").

In general, a common source of error appears to be confusing teaspoons and tablespoons.

Ingredient: Water:	#	%
3 glasses	13	14.4
3-4 glasses	1	1.1
*/** 4 glasses	34	37.8
4 glasses, then boil	1	1.1
3/4 liter	1	1.1
*/** 1 liter	33	36.7
*/** 1 liter or 4 glasses	1	1.1
1 liter or 5 glasses	0	0.0
no/inapprop. response	6	6.7
Total responses:	90	100.0

Salt:	#	%
a pinch	0	0.0
½ teaspoon	0	0.0
** ½ teaspoon	34	37.8
* 1 teaspoon	23	25.6
* ½ tablespoon	23	25.6
1 tablespoon	3	3.3
no/inapprop. response	7	7.8
Sugar:	#	%
a pinch	0	0.0
½ teaspoon	2	2.2
1 teaspoon	1	1.1
2 teaspoons	7	7.8
3 teaspoons	3	3.3
** 4 teaspoons	5	5.6
* 8 teaspoons	16	17.8
* 8 t. or 4 T.	0	0.0
½ tablespoon	1	1.1
1 tablespoon	1	1.1
** 2 tablespoons	7	7.8
2-4 tablespoons	1	1.1
3 tablespoons	6	6.7
* 4 tablespoons	20	22.2
8 tablespoons	11	12.2
no/inapprop. response	9	10.0
Other Ingredients:	#	%
orange juice (unspec. amt.)	26	28.9
½ cup orange juice	2	2.2
** 1 cup orange juice	34	37.8
lemon juice (unspec. amt.)	1	1.1
bicarbonate (unspec. amt.)	23	25.6
pinch of bicarbonate	0	0.0
** ½ teaspoon bicarbonate	9	10.0
1 teaspoon bicarbonate	3	3.3
½ tablespoon bicarbonate	6	6.7
* no additional ingredient	9	10.0
no/inapprop. response	5	5.6
Total Responses:	90	100.0

* = correct response based on current MOH norms.
 ** = correct response based on previous MOH norms.
 */** = norms are the same for both current and past versions.
 *= or **= = response equivalent to current or past norms.

As evidenced by the previous analysis, there appears to exist a great deal of confusion amongst this sample of health promoters with regard to current and past MOH norms for the preparation of homemade ORS, most commonly in the addition of ingredients besides the current norms on the correct amount of water, salt and sugar.

A comparison of the variation in these norms, and tables comparing scores by current and past versions of these norms, follows. It should be noted that even when combining correct answers based on both versions, by-item scores are still generally well below 80%, with the exception of promoters' response to the proper amount of salt to add.

Of particular concern is the fact the appropriate amount of water to add was correctly answered by only about 75% of the promoters.

Current Norms: Homemade ORS

- A.¹⁶ 1 liter of clean water
1 teaspoon of salt
8 teaspoons of sugar

- B.^{17 18} 1 liter potable water (4 full glasses equal approximately 1 liter)
1 level teaspoon of salt
8 level teaspoons of sugar

Previous PRINAPS Norms: Homemade ORS

- 1 liter boiled water
- $\frac{1}{2}$ teaspoon of salt
- 2 tablespoons of sugar ("4 tablespoons" was used in the 1983 PRINAPS manual)
- 1 cup of orange juice, if available
- $\frac{1}{2}$ teaspoon of bicarbonate, if available

¹⁶ Guía para el Personal Voluntario en la Prevención y Tratamiento de las Diarreas. Div. de Vigilancia y Control de Enfermedades, Div. de Recursos Humanos/DGSS/MSPAS. Guatemala, Dic. 1987. p. 5.

¹⁷ Manual de Normas y Guías de Atención Materno Infantil. MSPAS. Guatemala, 1988. p. 211.

¹⁸ Módulo Integrado de Supervivencia Infantil. MSPAS/INCAP. Guatemala, 1988. pp. 196-7.

Analysis of Correct Responses by Version of Norms Used:

* Current Norms:	#	%
Water (1 liter or 4 glasses)	68	75.6
Salt (1 teaspoon)	46	51.1
Sugar (8 teaspoons)	36	40.0
Other (none)	9	10.0
** Previous Norms (PRINAPS):		
Water (1 liter)	68	75.6
Salt ($\frac{1}{2}$ teaspoon)	34	37.8
Sugar (2 or 4 tablespoons)	12	13.3
Other:		
Orange juice (1 cup)	34	37.8
Bicarbonate ($\frac{1}{2}$ teaspoon)	9	10.0
*/** Combined Old/New Norms:		
Water	68	75.6
Salt	80	88.9
Sugar	48	53.3
Other:		
None *	9	10.0
Orange juice **	34	37.8
Bicarbonate **	9	10.0

14. Write in the spaces provided the amount of the following ingredients to be used in preparing 1 liter of packaged oral rehydration solution.

Clean water: _____ (1 liter) _____

Number of packets of oral rehydration salts: _____ (1) _____

Orange juice: _____ (X - none) _____

Other ingredient: _____ (X - none) _____

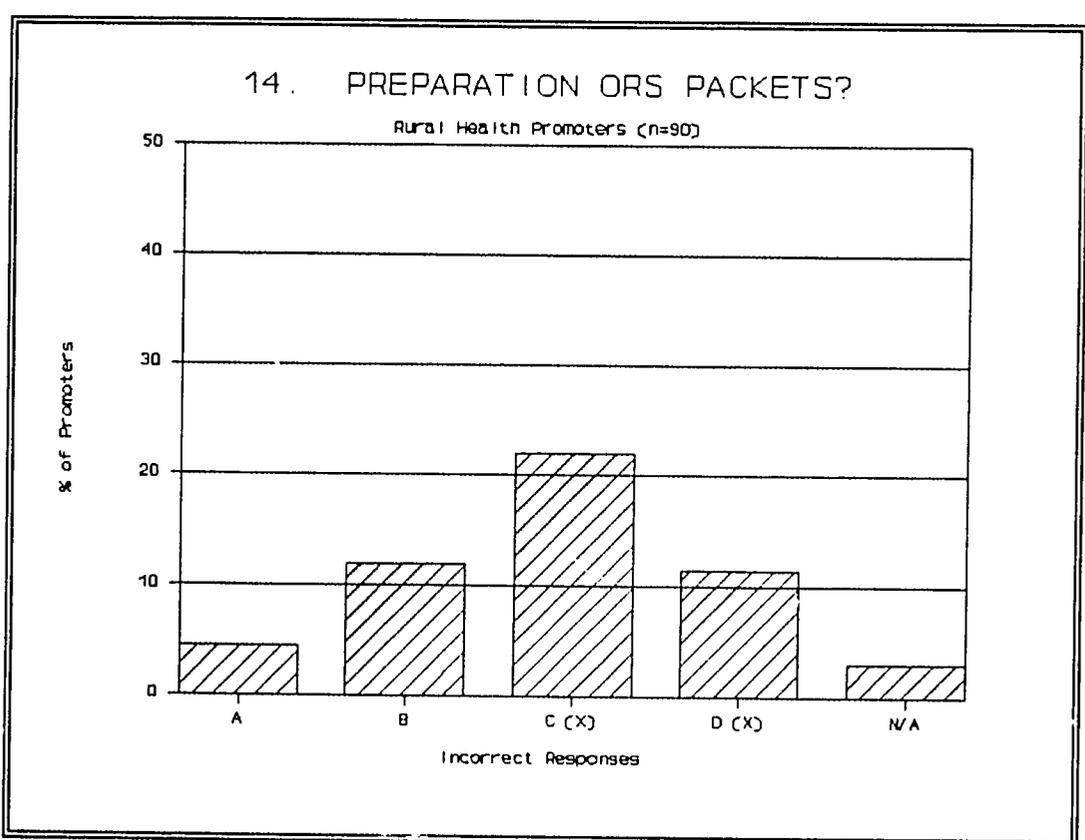


Figure 22: The Preparation of ORS Packets

Question #14 -- Packaged ORS:

Overall, level of knowledge of the preparation of packaged ORS is significantly higher than that of the homemade mixture. Even so, there exist some serious weaknesses which deserve special attention.

Six promoters (6.7%), mostly in the district of Santa Lucia Cotzumalguapa, responded incorrectly to the amount of water to add. Of the six promoters, one may have confused the packets prepared for making one glass of ORS with those for preparing one liter. Three (3.3%) indicated an incorrect number of packets of ORS to add to the mixture.

More importantly, 21 of the promoters (23.3%), including roughly one-third of the promoters in San Pedro Carchá, indicated that some quantity of orange juice should also be added to the preparation.

Finally, of the most concern is the fact that 10 promoters (11.1%) indicated that they would add some additional ingredient. All 10 of these promoters specified that they would add either salt, sugar or bicarbonate of soda to the packaged mixture water. This result may reflect confusion between the two types of ORS, homemade and packaged. If this is in fact true, a serious situation exists requiring urgent attention. Two health promoters did not respond to this question at all.

An analysis of by-item responses to this question follows, based on current (*) and past (**) norms, both of which call for the addition of nothing more than one packet of ORS to one liter of water.

Ingredient:	#	%
Water:		
1 glass	1	1.1
*/**=4 glasses	43	47.8
4 glasses, then boil	1	1.1
*/** 1 liter	38	42.2
*/**=1 liter or 4 glasses	1	1.1
1 liter or 5 glasses	0	0.0
no/inapprop. response	6	6.7
Total responses:	90	100.0

# of Packets of ORS:	#	%
0 packets	0	0.0
** 1 packet	85	94.4
4 packets	1	1.1
no/inapprop. response	4	4.4

Orange Juice:	#	%
** none	67	74.4
1 cup	13	14.4
2 cups	0	0.0
specified # of oranges	8	8.9
no/inapprop. response	2	2.2

Other Ingredients:	#	%
** none	78	86.7
salt (unspec. amt.)	2	2.2
pinch of salt	0	0.0
½ teaspoon of salt	1	1.1
bicarbonate (unspec. amt.)	5	5.6
pinch of bicarbonate	0	0.0
1 teaspoon of bicarbonate	1	1.1
sugar (unspec. amt.)	1	1.1
coconut water (unspec. amt.)	0	0.0
no/inapprop. response	2	2.2

Analysis of Correct Responses: Packaged ORS

Ingredient:	#	%
Water (1 liter)	82	91.1
# packets of ORS (1)	85	94.4
Orange juice (none)	67	74.4
Other ingredient (none)	78	86.7
Total responses:	90	100.0

h. Administration of ORS (Questions #15-16)

Scores are the lowest on this of any of the six sub-sections of the test with roughly 70% achieving a combined mean score of less than 50% on these two questions. Six promoters (6.7%) left blank Question #15 related to "how much ORS" to administer; 11 promoters (12.2%) did not respond to "how often" to administer ORS, the highest non-response rate for any sub-section of the test.

Once again, statistically significant differences were detected between the four Health Districts.

Administration of ORS:	Mean	SD	Range
Health Promoters (n=90)	23.8	35.0	0-100
Sacapulas (n=22)	13.8	22.5	0-50.0
San Lorenzo (n=20)	27.5	37.5	0-100
San Pedro Carchó (n=36)	10.0	21.3	0-75.0
Santa Lucia Com. (n=12)	75.0	40.0	0-100

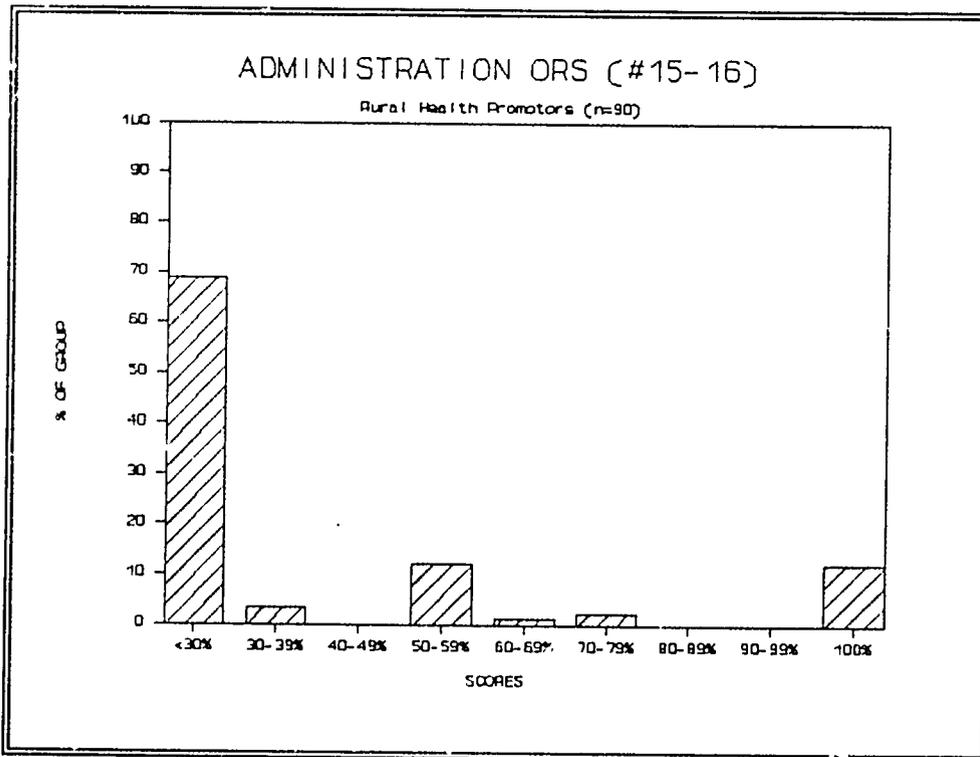


Figure 23: Scores on ORS Administration

From a clinical perspective, it is not sufficient to know that those participants who did respond to these questions would administer some quantity of ORS at some time to a child with diarrhea. The fact that so few respondents answered that the child should receive "as much ORS as often as he will accept it" is of concern.

According to recent studies, unless a child presents signs which would make oral rehydration contraindicated (e.g. loss of consciousness or frequent and uncontrolled vomiting), he should be permitted to take this fluid as often as he will accept it. These same studies demonstrated that a child will, in fact, consume the quantity of ORS he needs according to the degree of dehydration suffered, thus markedly reducing the risk of under or over hydration.

The dangers of recommending fixed quantities or rigid schedules for the administration of ORS are several, especially for mothers in a rural setting. In the first place, determining the precise quantity to administer is dependent upon knowing the child's weight and having the necessary medical knowledge for determining degree of dehydration. Often neither condition can be met by the layman. Secondly, prescribing a specific quantity of ORS requires that the mother be adequately familiar with the unit of measure used, which is not always a safe assumption to make (see discussion of the results of last year's study on recognition of water-vessel size in Guatemala in "Conclusions and Implications for Action").

Third, the amount prescribed may exceed or fall short of the child's real needs. Should the quantity exceed need, one runs the risk of over hydrating the child, or the mother may become anxious when her child refuses the treatment. Conversely, if the quantity is insufficient to meet the child's needs, his condition may deteriorate. In either case, a logical consequence could well be that the mother 1) loses confidence in her own ability to provide her child with adequate treatment, or 2) she loses confidence in the advice of the promoter, or even in the health system in general.

The problems of achieving the proper balance are amongst the reasons why public health systems are moving away from sophisticated calculations which are difficult to perform at the primary treatment level. Cases of severe dehydration, or those which do not respond to oral therapy, should be routinely referred to the secondary (or tertiary) level anyway, where personnel are specifically trained to perform these calculations or to provide intravenous therapy where indicated. Neither of the two questions, however, implied that such variables existed.

The most important point is that administering ORS according to how much the child will take greatly facilitates the task of rehydrating a child for the mother or other caretaker by eliminating the need to memorize complex schedules or quantities which will vary according to the child's weight or condition.

Consequently, this is one area in which the MOH can greatly simplify the enormous task of educating the public in the proper management of diarrheal disease. Unfortunately, promoters' training manuals and MOH norms are vague at best with regard to these simplified instructions.

15. How much oral rehydration solution should a child with diarrhea drink? (Mark only one answer.)

- X A. 1 cup every 4 hours.
- X B. 1 liter a day.
- X C. 2 liters a day.
- D. All the child wants.

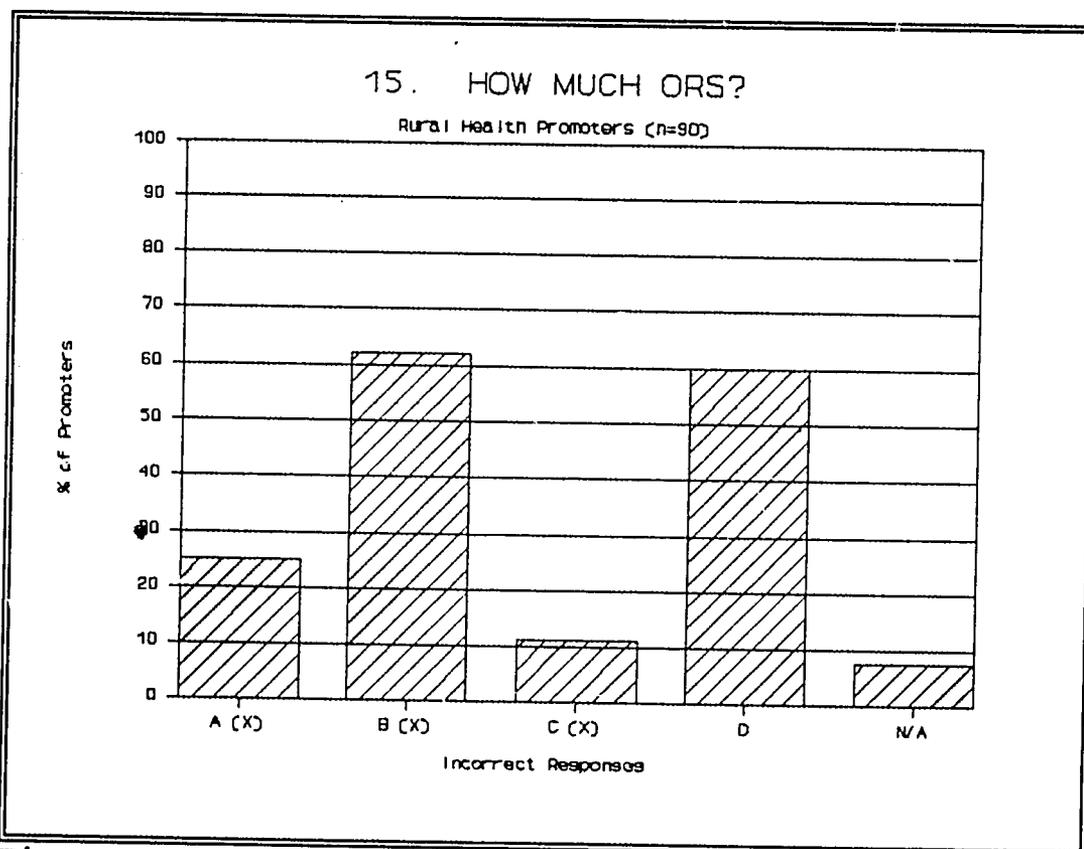


Figure 24: Quantity of ORS to be Administered

NOTE: X indicates incorrect responses.

16. How often should you give oral rehydration solution to a child with diarrhea? (Mark only one answer.)

X A. Every 5 minutes.

X B. Every 1/2 hour.

X C. Every hour.

D. As often as the child will accept it.

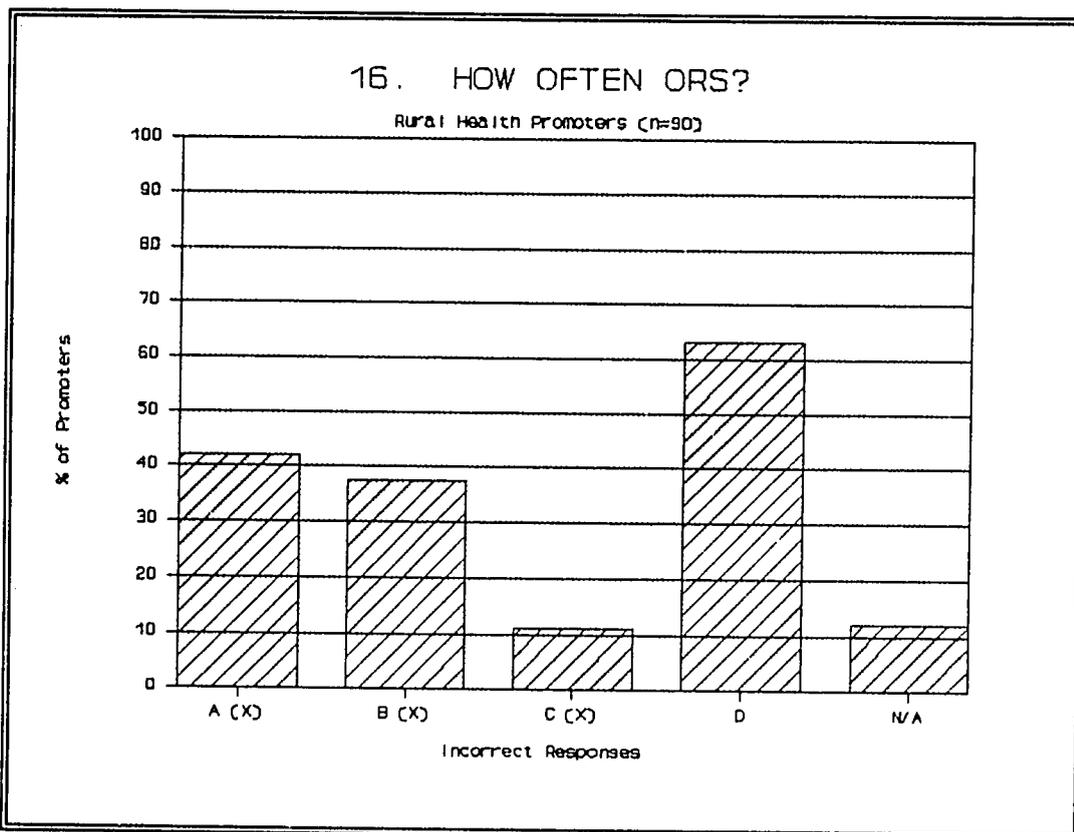


Figure 25: Frequency of ORS Administration

2. EPI Test¹⁹

The test was designed to measure the promoters' knowledge of his/her role regarding immunization activities, what diseases are immunopreventable, recognition of important disease symptoms, correct vaccination schedules, when not to vaccinate, and appropriate information for mothers concerning reactions that children may have after being immunized. These areas of knowledge were covered in four sections with five questions each for a total of 20 questions; each question, with one exception, was assigned a value of four points and Question 3 was given two points for a total possible score of 78 points (100%).

Total scores were calculated for the 94 promoters from the four Districts in the sample. The scores were then disaggregated by District, gender of the promoter, age, marital status, number of children, occupation, length of time as a promoter, and the date of last promoter training. As shown below, the scores varied somewhat according to the characteristics of the different promoter subgroups. We were especially concerned about differences between promoters in the four health Districts as well as the other independent variables listed above. Analyses of variance were performed to determine if these differences were statistically significant with a confidence interval of at least 95% ($p < .05$).

a. Promoter Profile (n=94)

health district	This 20 item written test was administered to 22 rural health promoters from the district of Sacapulas, El Quiché; 20 from San Lorenzo, San Marcos; 39 from San Pedro Carchá, Alta Verapaz; and 13 from Santa Lucía Cotzumalguapa, Escuintla, for a total sample size of 94, as compared to 90 taking the ORT test.
gender	Males accounted for 68% of the study sample, and females for 32%, as compared to 69% and 31%, respectively, taking the ORT test.
age	Age ranged from 15-59 years (average = 30 years, the same as for the ORT test sample). The under 18 year old, technically ineligible to be rural health promoters based on current MOH norms, accounted for 4% of this sample. Thirty-four percent of the sample is between 18-25 years of age; 37% is between 26-35; 15% is 36-45;

¹⁹ See Appendix F for a comparison of the samples of pro-motors taking this and the ORT test.

and 7% is over 45 years of age--the same percentage as amongst those who took the ORT test. No data ere available on three individuals (3.2% of the sample) taking this test.

marital status

Sixty-five percent of the sample is married (59%), living in consensual union (5%), or widowed (1%); 35% is single--5% more than those taking the ORT test.

of children

Number of children ranged from 0-10--identical to the sample taking the ORT test. Thirty-three percent has no children, corresponding roughly to the single population. One quarter of this sample has 1-3 children; 20% has 4-5 children; and 14% has 6-7 children. Seven percent of the sample has more than 7 children--again, the same as for the ORT test. No data were available on 1 individual in the sample.

occupation

Fifty-five percent of this sample is dedicated to small-scale agricultural production. Three percent are merchants; 3% are laborers; and another 3% are dedicated to miscellaneous endeavors. Virtually all females who responded to this question classified themselves as housewives, with the exception of a single midwife. No data were available on 6 individuals (6% of the sample).

years of service

Time in service ranged from one month to 16 years, identical to the sample taking the ORT test. Sixty-one percent of the sample has worked as rural health promoters for 5 years or less, with 14% having initiated their activities in the past year. One quarter of the sample has worked for 6-12 years; 11% has worked for over 12 years. No data were available on 4% of the study sample.

last training

Nearly 50% of the sample stated they had received training within the month prior to administration of the questionnaire. Another third indicated they had received training in the previous eleven months. Two participants (2.1%) responded that they had not attended a training course for a year and a half; one stated he had not received training for two years; one for three years; one for five years; and one for six years, since initiating his service.

A fair proportion of the group (13%) did not respond to this question, and one may speculate that many of these 12 individuals either have received no retraining, or did so long enough ago they no longer recall precise dates.

b. Total Test Scores

The tests were designed and evaluated using the most current norms from the MSPAS. The mean score for all 94 promoters from the four Districts was 67%. When the total scores were crosstabulated by District, they turned out to be surprisingly consistent, and the small differences were not statistically significant.

Total Test Scores (%):		Mean	SD	Range
All Promoters	(n=94)	67.0	12.9	33.3-92.3
Sacapulas	(n=22)	66.1	13.2	46.2-92.3
San Lorenzo	(n=20)	67.1	11.6	50.0-89.7
San Pedro Carchá	(n=39)	68.4	11.3	33.3-84.6
Sta. Lucia Cotz.	(n=13)	64.3	18.9	35.9-91.0

Some variation can be seen in the high and low ranges of the test scores. Note that Santa Lucia is somewhat lower than the other three Districts. The difference, however, is not statistically significant.

Figure 26 shows the distribution of test scores for the sample of 94 promoters in 10% increments.

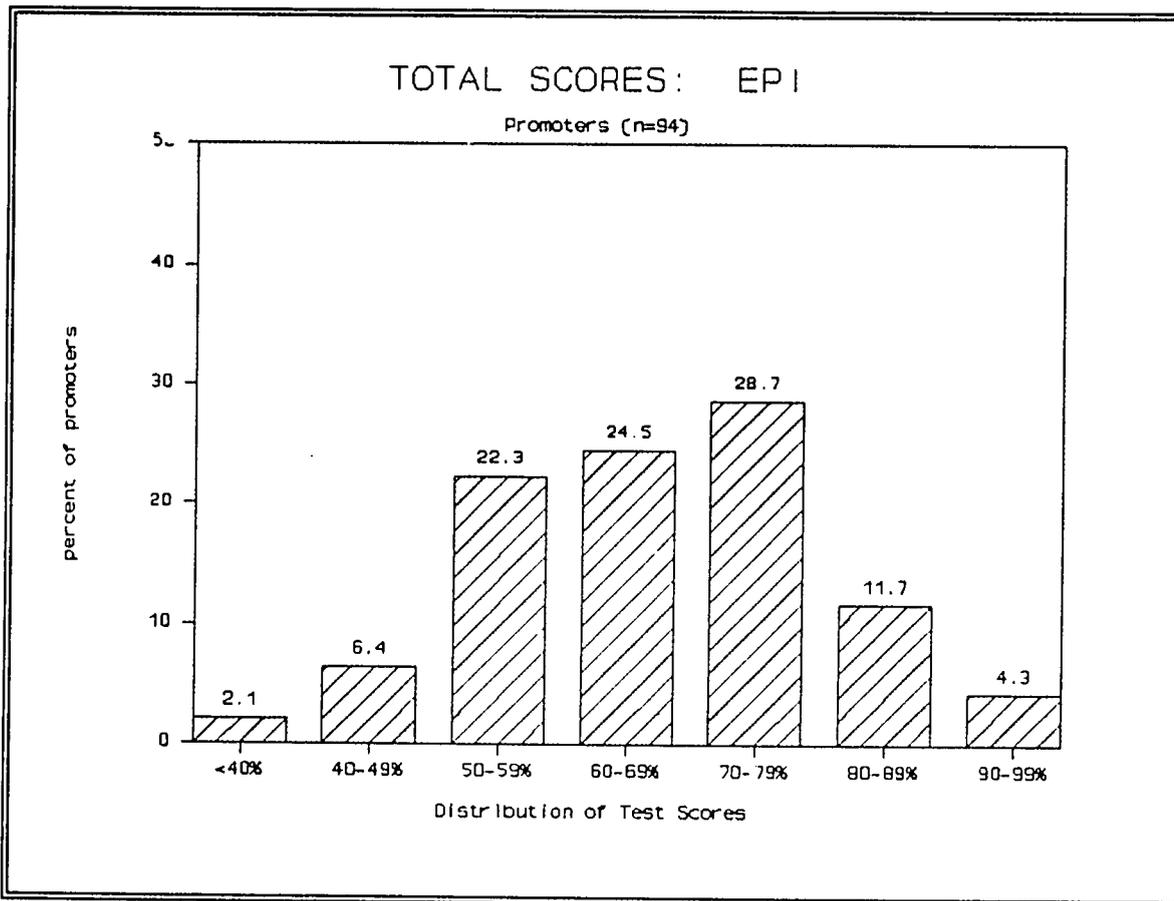


Figure 26: Distribution of Total Test Scores

Analyses of variance were calculated to explore the possibility of significant differences in test scores as a function of age, gender, occupation, marital status, number of children, years of experience, and the time since the last training of any kind. Not a single one of these independent variables could be shown to have any statistically significant effect on the total test scores. Unfortunately, the educational level of the promoter was inadvertently omitted from the questionnaire and could possibly have been of some significance.

c. Immunization: General Knowledge (Questions #1-5)

The objectives of these five questions were to determine what the promoters believed to be their role in immunization activities on the community level, what factors were important for achieving adequate coverage (Questions 1 and 2), whether or not they were aware of parents' obligation to have their children vaccinated as put forth in the Health Code (Question 3), and their knowledge of which diseases can be prevented by vaccination and the specific diseases covered by each vaccine (Questions 4 and 5).

Score: Section A (%) (Questions 1-5)		Mean	SD	Range
All Promoters	(n=94)	74.2	16.5	33.3 100
Sacapulas	(n=22)	75.3	16.8	38.9-100
San Lorenzo	(n=20)	79.2	14.7	44.4-94.4
San Pedro Carchá	(n=39)	71.4	16.1	44.4-100
Sta. Lucia Cotz.	(n=13)	73.1	19.5	33.3-94.4

None of the scores for Section A were significantly different for any of the Districts. All were, however, higher than the average for the entire test. Figure 27 shows the distribution of results for all 94 promoters.

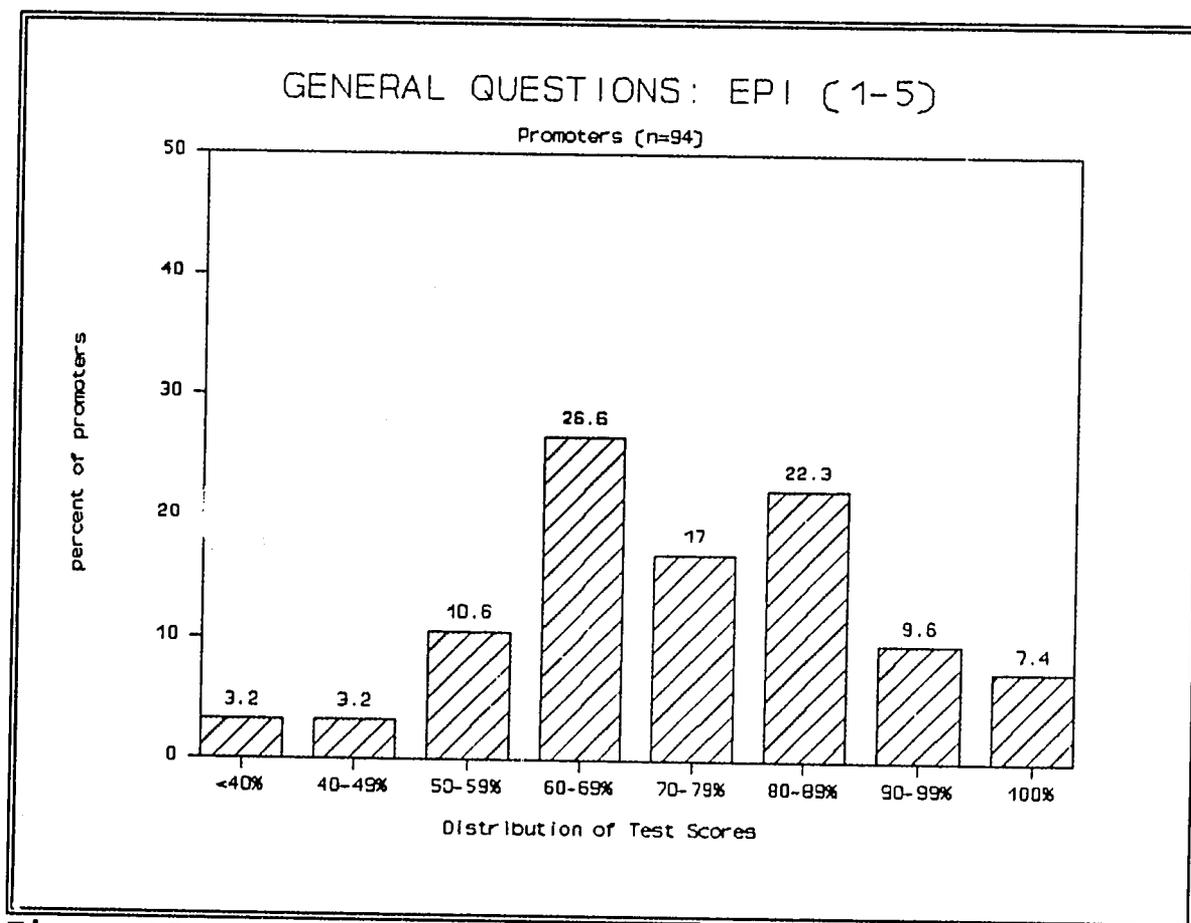


Figure 27: Promoter Role and Knowledge of EPI Diseases

Question #1: Here the promoters were asked to indicate the appropriate activities relating to immunization from a list of 8 items; all were correct. Almost one-quarter (24.5%) of the promoters did not consider keeping a register of vaccinated and unvaccinated mothers and children as part of their duties, and nearly one-fifth (19.1%) did not indicate that teaching mothers about reactions to being vaccinated was something they should be doing. Another 18.1% did not indicate that promoters should look

for unvaccinated mothers and children and refer them to the nearest Health Center/Post for immunization.

Almost 15% of the promoters did not know that they should participate in vaccination activities, and nearly 14% did not know that they should be able to recognize the diseases that are immunopreventible in order to inform to the nearest health facilities. About 13% did not indicate that they should be teaching mothers at what age and how many times their children should be vaccinated. Relatively few did not know that promoters should be teaching about the importance of vaccinations and the risks of not vaccinating children--7.4% and 6.4%, respectively.

Question #2: When asked to indicate the factors that lead to successful vaccination, almost 43% did not know that coverage was important. Another 22% did not mark the importance of proper training of the personnel involved, and almost 15% did not realize the importance of proper vaccine handling. Nearly 12% did not recognize the importance of community participation.

Question #3: A little over 18% of the promoters did not recognize the obligation parents have to vaccinate their children as indicated in the Health Code (Código de Salud).

Question #4: When asked to pick the 6 immunopreventible diseases from a list of 8, 22.3% failed to identify tuberculosis, 19% did not mark diphtheria, 17% failed to recognize neonatal tetanus, almost 15% did not know about pertussis, 11.7% ignored polio, and only 6.4% did not indicate measles. Another 16% incorrectly marked malaria, and 19.1% thought there was a vaccine for the common cold.

Question #5: In this question the promoters were asked to fill in the diseases covered by BCG and DPT vaccines. Almost 13% did not know that the BCG vaccine is for tuberculosis. In the case of DPT, 18.1% failed to indicate diphtheria, 11.7% erred on pertussis, and 18.1% did not know about tetanus.

Note: In interpreting the following bar graphs, the reader should keep in mind that the percentage of wrong answers is indicated. The respondents either marked an incorrect item or failed to mark a correct one. "N/A" represents the percentage of promoters who did not respond to a particular question.

1. Which of the following tasks do you think are responsibilities of a health promotor? (Underline the correct answer or answers.)
- A. Promote and participate in vaccination activities in his community.
 - B. Teach his community about the importance of vaccines and the diseases they prevent.
 - C. Teach his community about the risks to a child who is not vaccinated.
 - D. Teach his community the ages at which a child should be vaccinated, and how many times he should be vaccinated.
 - E. Teach his community about the reactions vaccines can cause, and how to treat them.
 - F. Keep a record of the children and pregnant women in his community who are vaccinated and not vaccinated.
 - G. Visit children and pregnant women who are not vaccinated, and refer them to the health service.
 - H. Recognize the signs of diseases that can be prevented by vaccination, and report cases to the health service.

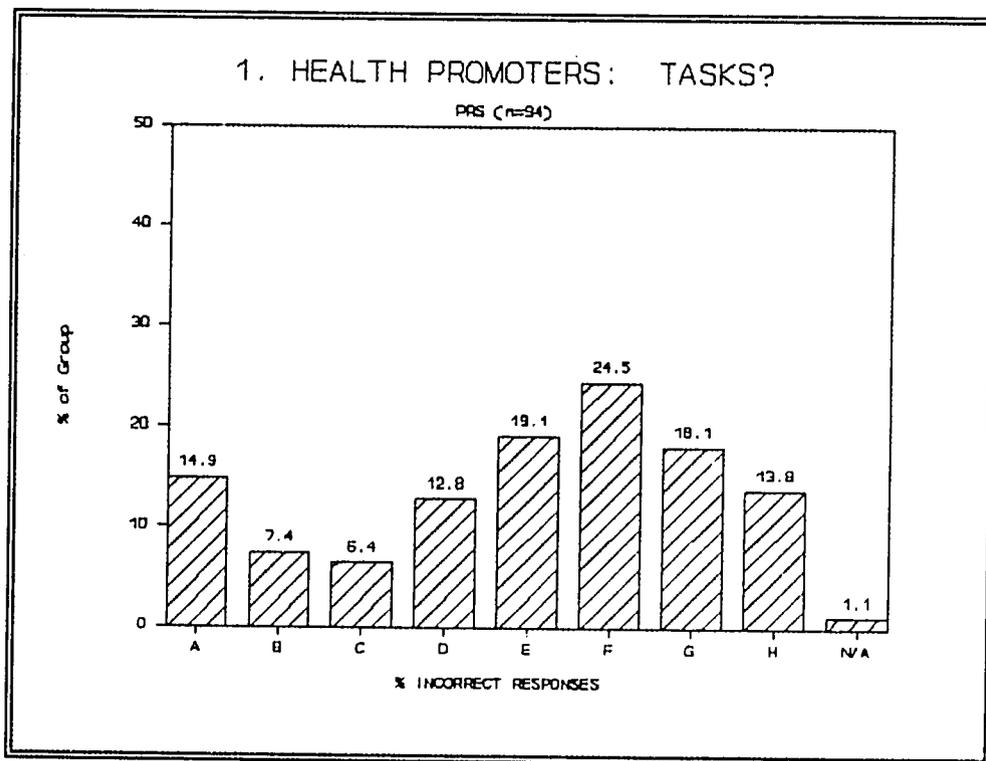


Figure 28: Promoter Tasks and Responsibilities

2. The success of vaccination activities in your community depends on which of the following factors? (Underline the correct answer or answers.)
- A. Its coverage (the number of children and pregnant women who are vaccinated).
 - B. The adequate handling of the vaccines.
 - C. The participation of the community.
 - D. The adequate training of the personnel who participate.

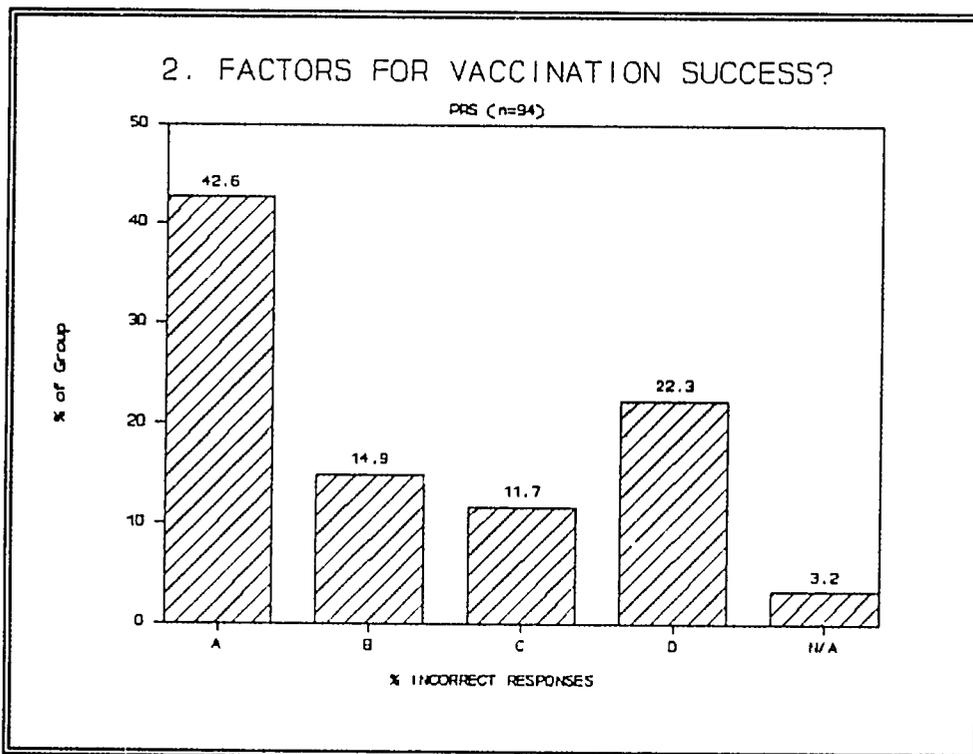


Figure 29: Vaccinations--Factors for Success

3. According to the Health Code, are parents obligated to vaccinate their children? (Mark only one answer.)
- A. Yes.
 - B. No.
 - C. I don't know.
4. Which of the following diseases will a child not get if he is vaccinated? (Underline the correct answer or answers.)
- A. Polio (infant paralysis).
 - B. Diphtheria.
 - C. Malaria.
 - D. Tetanus (the seven-day illness).
 - E. Measles.
 - F. Common cold or flu.
 - G. Tuberculosis.
 - H. Pertussis (whooping cough).

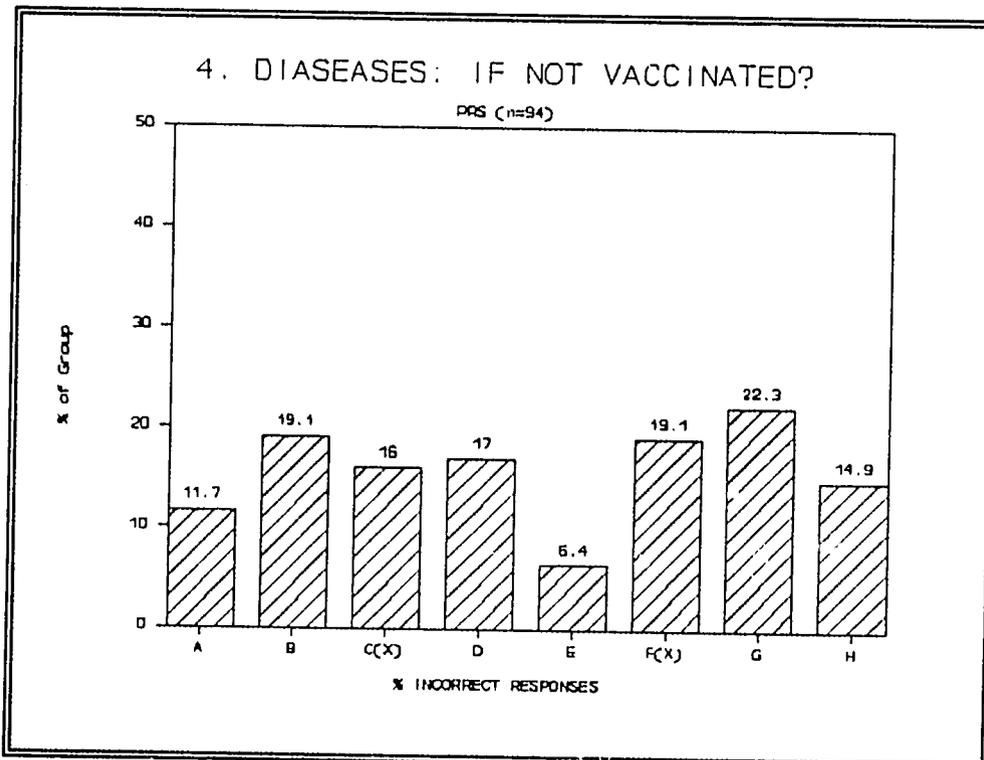


Figure 30: Immunopreventible Diseases

5. Write in the spaces provided, which diseases the following vaccines protect against.

A. BCG: 1. tuberculosis

B. DPT ("Triple"): 1. diphtheria

2. pertussis (whooping cough)

3. tetanus

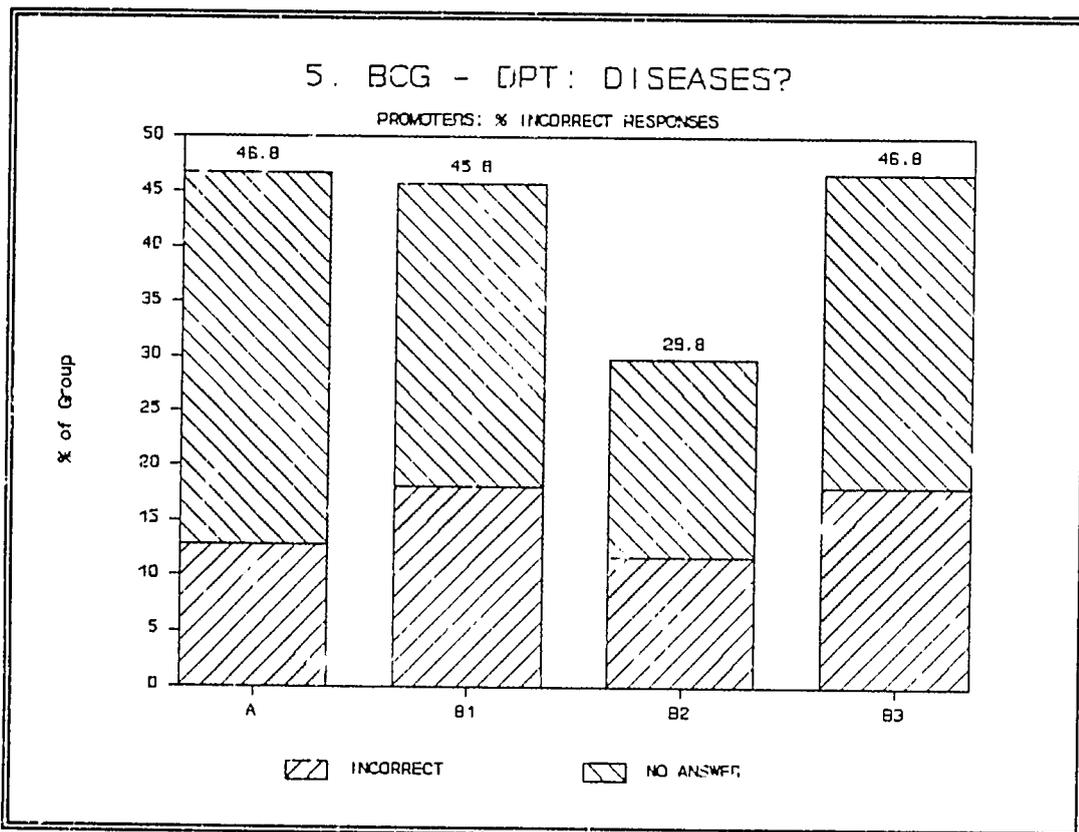


Figure 31: Diseases Prevented by BCG and DPT

**d. Knowledge of Immunopreventable Diseases
(Questions 6-10)**

In this section of the test, the promoters were asked to identify specific signs and symptoms of tuberculosis, pertussis, neonatal tetanus, polio, and measles. Each question had four indicated answers and the respondents were asked to mark the correct ones; the four choices were all correct for the four questions.

Score: Section B (%) (Questions 6-10)		Mean	SD	Range
All Promoters	(n=94)	78.9	20.9	20.0-100
Sacapulas	(n=22)	72.7	21.1	20.0-100
San Lorenzo	(n=20)	72.8	20.0	40.0-100
San Pedro Carchá	(n=39)	87.3	16.7	20.0-100
Sta. Lucia Cotz.	(n=13)	73.5	26.0	20.0-100

Again, the differences in the scores between the Districts are not statistically significant, but San Pedro Carchá comes very close by having the highest achievement on this section of the test.

Figure 32 shows the distribution of scores for all the promoters in the sample:

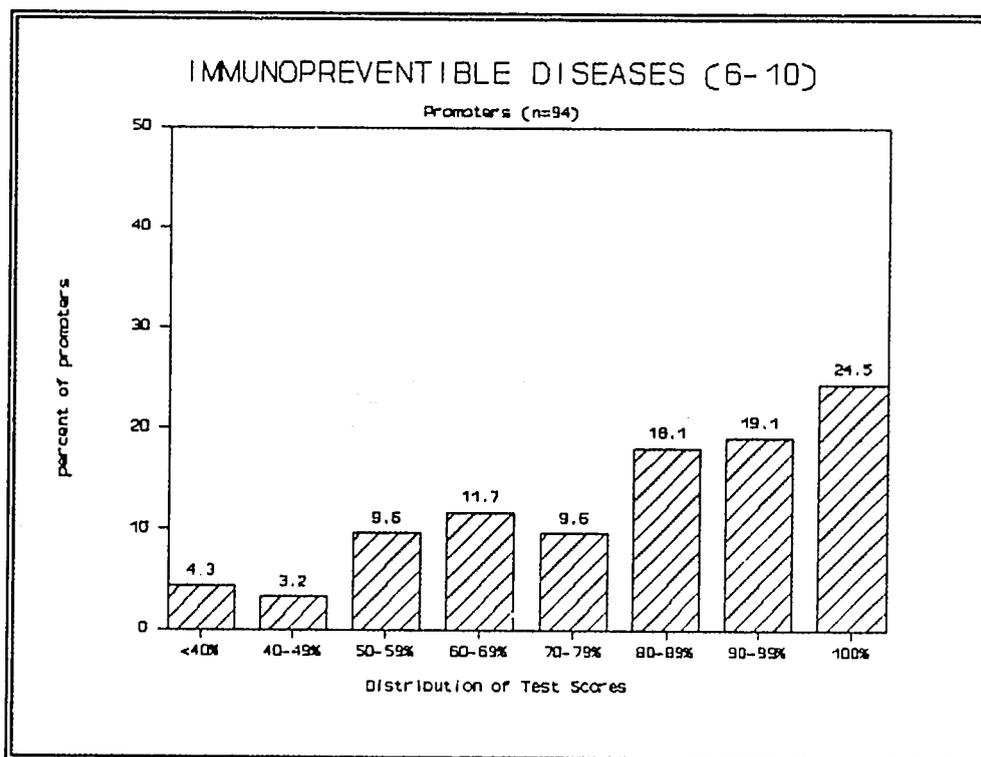


Figure 32: Knowledge of Disease Signs and Symptoms

Question #6: When asked about tuberculosis, the least known symptoms are fever and nightsweats--not recognized by one-third of the promoters. Lack of appetite and weight loss was not known by one-quarter of the respondents, and 18% failed to mark tiredness. The best known symptom is coughing and the spitting up of blood; this was missed by only 5.3%

Question #7: In the case of pertussis, a little over one-fifth (21.3%) of the promoters did not know that fever, cold symptoms, dry cough, general body discomfort, and frequent coughing are typical of this disease. About 18% did not identify the characteristic whooping or whistling sound, and almost 13% did not recognize signs of choking while coughing.

Question #8: One-quarter of the promoters did not recognize the classical arched rigidity so typical of tetanus, and a little over one-fifth did not know that the face of the patient becomes stretched, and he looks like he is smirking or making faces. The best known symptom is the inability to nurse or eat because the child can neither open his mouth nor swallow; this was missed by only 9.6% of the promoters.

Question #9: Over one-third (36.2%) of the promoters did not know that diarrhea, fever, and general discomfort are symptoms of polio. One-quarter did not identify neck, back, leg, or arm pains as significant, and 18% failed to recognize the inability to move the head, legs, or arms. Only 7.4% did not know that arms and legs become thin, deformed, and paralyzed.

Question #10: Since measles is one of the best known and most publicized of the immunopreventible diseases, we expected very few wrong answers. Quite to the contrary, over one-fifth (22.3%) of the promoters did not know that measles begins with a cold, dry cough, high fever, and general body discomfort, and one-fifth (20.2%) did not recognize the tell tale rash that spreads all over the body. Watery and red eyes were not acknowledged by 17%, and 7.4% did not know about the commonly known spots (ronchitas) in the face, on the neck, and behind the ears.

6. Which of the following are signs of tuberculosis?
(Underline the correct answer or answers.)
- A. The patient has a cough for a long time, and sometimes when he coughs, he spits up blood.
 - B. The patient has a fever, and sweats a lot at night.
 - C. The patient is not hungry, and loses a lot of weight.
 - D. The patient feels very tired, and doesn't feel like working or studying.

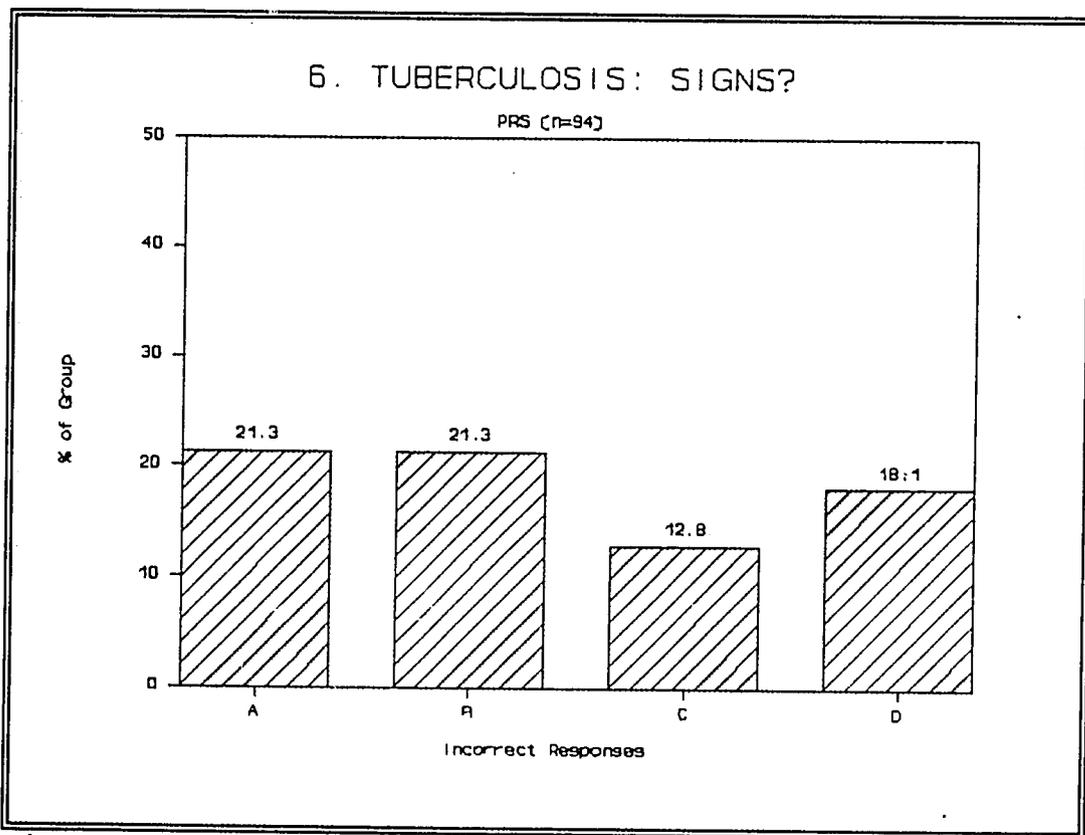


Figure 33: Signs and Symptoms of Tuberculosis

7. Which of the following are signs of whooping cough? (Underline the correct answer or answers.)
- A. The disease starts with a fever, cold symptoms, dry cough and general body discomfort.
 - B. The patient has coughing fits.
 - C. It seems like the patient is choking when he coughs.
 - D. The patient makes a wheezing sound at the end of a coughing fit.

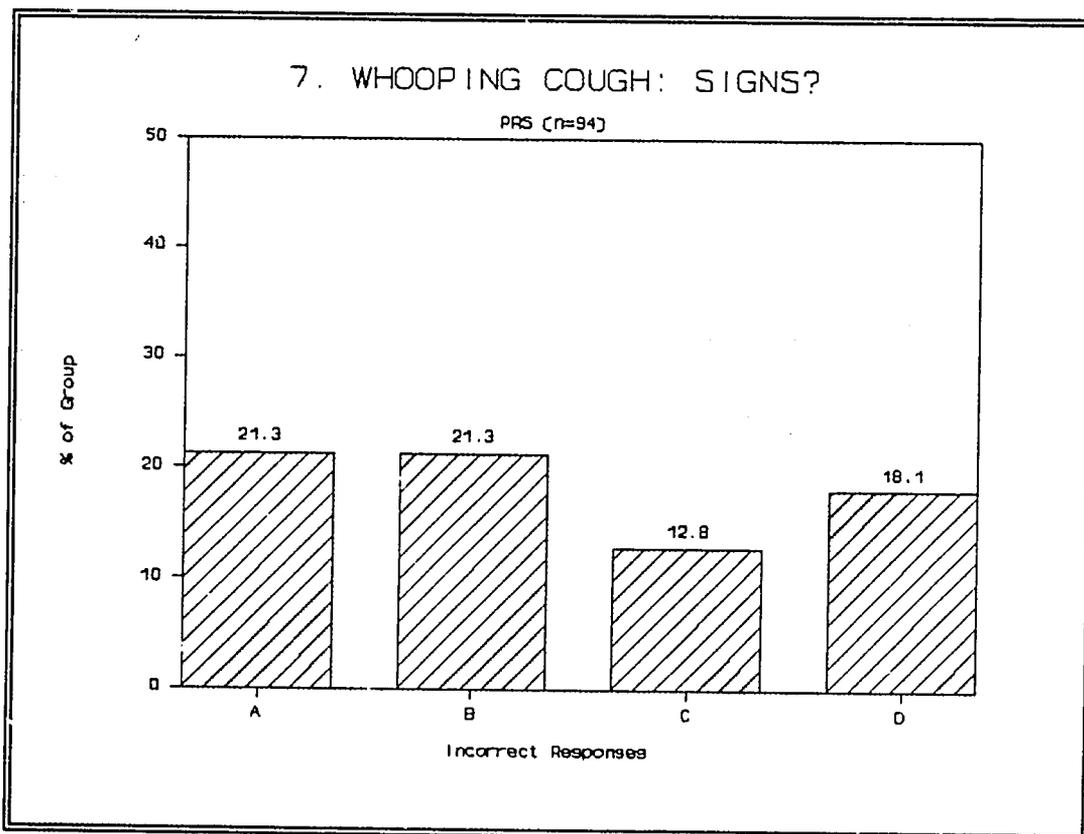


Figure 34: Signs and Symptoms of Pertussis

8. Which of the following are signs of tetanus (the seven-day illness)? (Underline the correct answer or answers.)
- A. The patient can not breastfeed or eat because he can't open his mouth or swallow.
 - B. The face of the patient becomes stretched, and he looks like he is smirking or making faces.
 - C. The patient's body becomes stiff, and his back arches.
 - D. The patient's arms and legs get stiff, and he has convulsions.

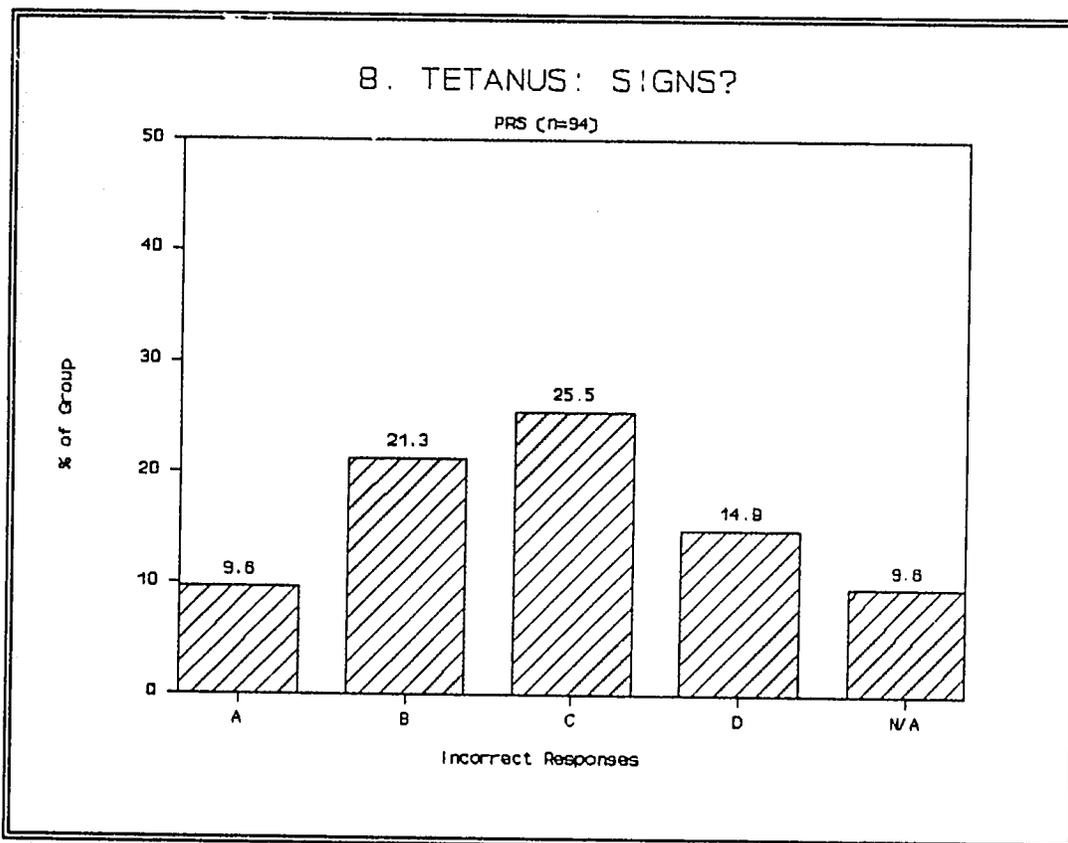


Figure 35: Signs and Symptoms of Tetanus

9. Which of the following are signs of polio (paralysis)?
 (Underline the correct answer or answers.)
- A. The disease starts with diarrhea, fever, ccugh and general body discomfort.
 - B. The patient has pain in his neck, back, legs or arms.
 - C. The patient can not move his head, legs or arms.
 - D. The arms or legs of the patient become thin, deformed, and finally paralyzed.

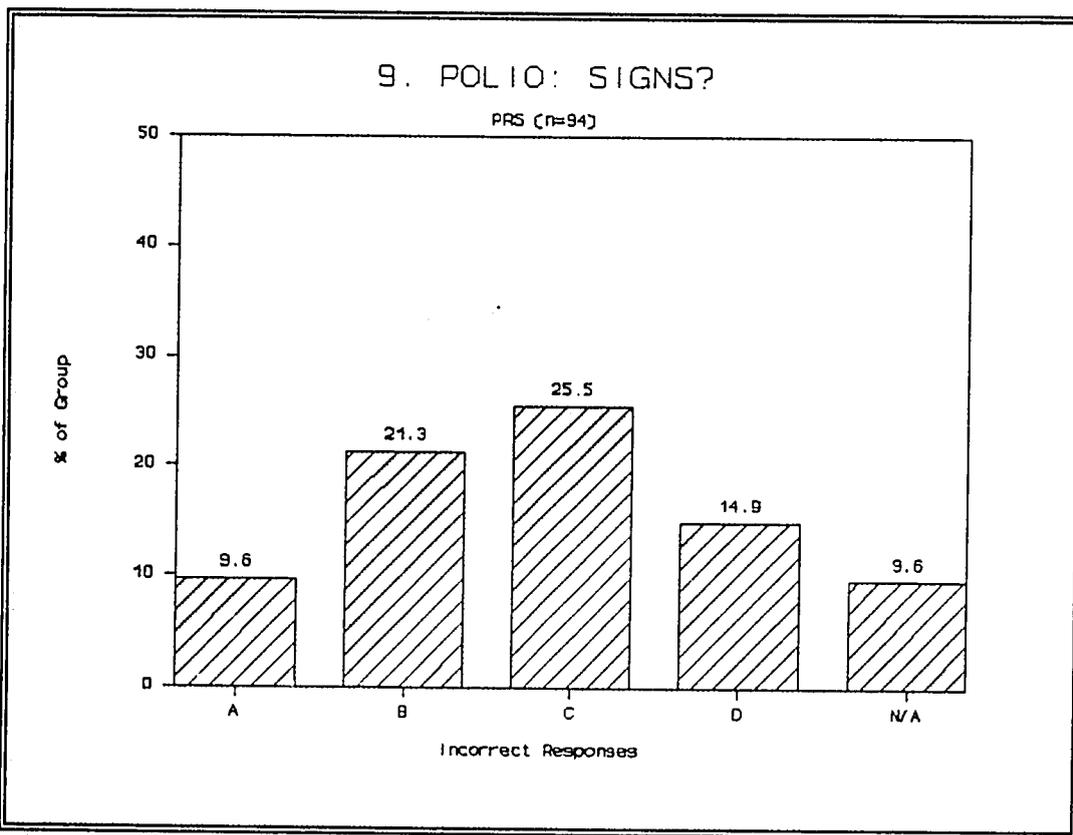


Figure 36: Signs and Symptoms of Polio

10. Which of the following are signs of measles? (Underline the correct answer or answers.)
- A. The disease starts with a cold, dry cough, high fever and general body discomfort.
 - B. The patient has red, watery eyes.
 - C. After three days of fever, the patient gets a rash on his face, neck, and behind the ears.
 - D. The rash spreads all over the patient's body.

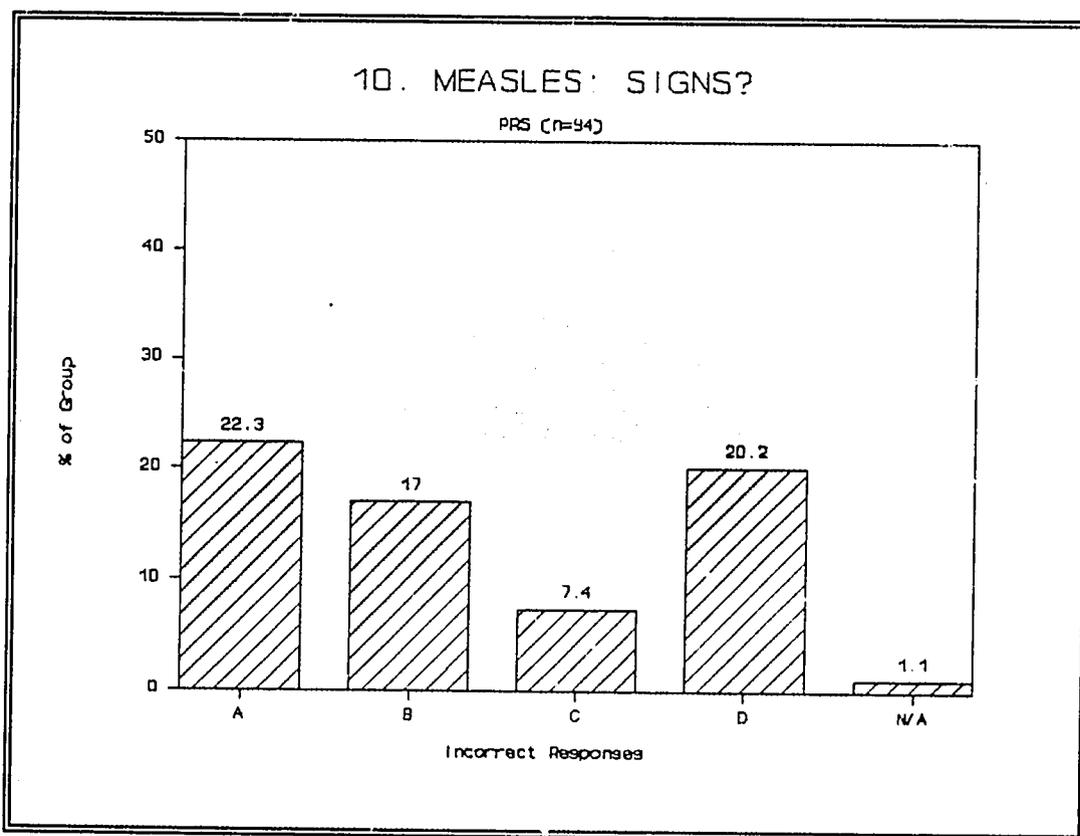


Figure 37: Signs and Symptoms of Measles

e. **Vaccination Scheme: When to Vaccinate, How Many Times, and With What Interval Between Doses**
(Questions 11-15)

The objective with this group of questions was to get an idea of what information was being given to mothers by promoters on when and how often they should have their children immunized and when pregnant women should seek tetanus toxoid injections.

Score: Section C (%) (Questions 11-15)		Mean	SD	Range
All Promoters	(n=94)	49.5	24.0	00.0-95.0
Sacapulas	(n=22)	46.6	22.9	00.0-90.0
San Lorenzo	(n=20)	49.3	27.3	00.0-90.0
San Pedro Carchá	(n=39)	51.0	21.4	05.0-85.0
Sta. Lucia Cotz.	(n=13)	50.4	29.7	00.0-95.0

The scores for this group of questions is by far the lowest with the largest range of answers and the highest standard deviations. Again, this was the case with all four Districts; there were no statistically significant differences. Figure 38 below shows the distribution of scores for all 94 promoters:

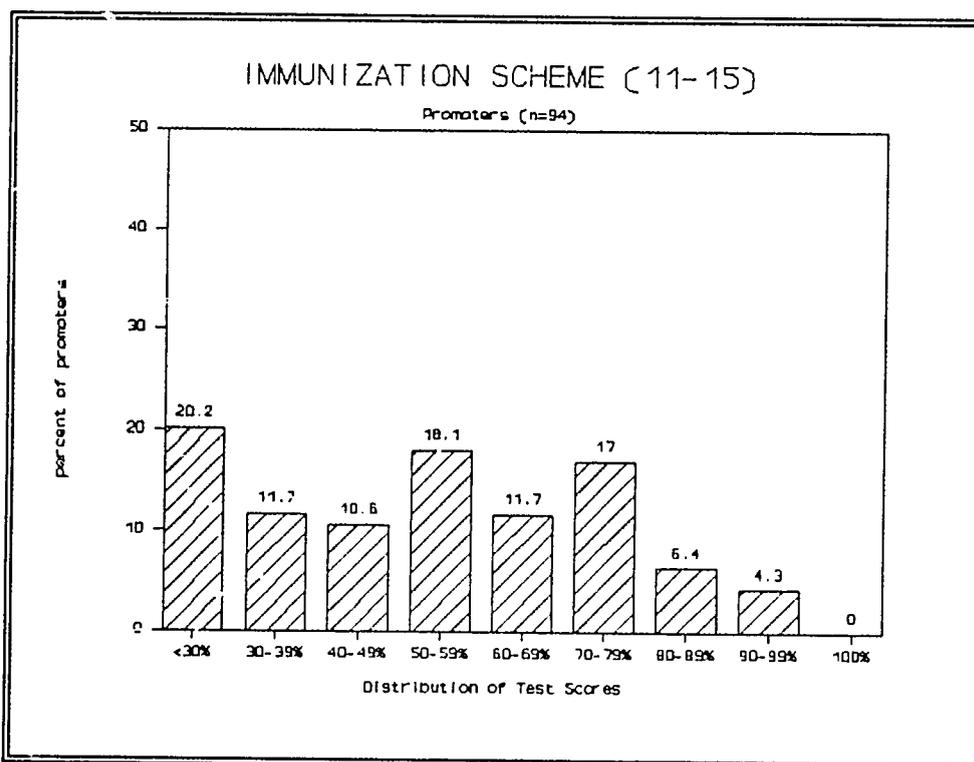


Figure 38: Immunization Scheme

Question #11: When the promoters were asked when, how often, the time for the last inoculation, and at what intervals Marta should receive tetanus toxoid, a total of 74.5% did not know the minimum time between doses (36.2% filled in the wrong answer and 38.3% did not respond); 54.3% did not know when she should receive the last dose (24.5% gave the wrong time and 29.8% left the question blank), and 50% did not know how many times she should be injected (28.7% wrong and 21.3% blank). Some 41.5% of the promoters did not know that Marta should receive the first dose during her fifth month of pregnancy (25.5% wrong and 21.3% blank).

Question #12: When presented with a list of the four EPI vaccines and asked when the first shot should be given, almost three-quarters (70.2%) did not know when DPT should be given (49.7% wrong and 24.5% blank), 67.2% did not know about BCG (19.1% wrong and 43.6% gave no answer), 41.5% (18.1% wrong and 23.4% blank) did not know about measles, and 34.1% (12.8% wrong and 21.3% blank) professed ignorance about when the first polio droplets should be administered.

Question #13: Over half of the promoters (52.1%) did not know that a child should be given only one dose BCG (20.2% were wrong and 31.9% did not answer the question), 42.6% did not know that polio vaccine should be given three times (21.3% were wrong and left the question blank). Some 34.0% did not know that DPT or triple should be given 3 times (13.8% erred and 20.2% did not answer), and a surprising 30.8% did not know that measles is given only once (8.5% wrong and 22.3% blank).

Question #14: The correct amount of time between each dose was also very problematic: 71.2% of the promoters did not know that BCG is given as a single dose and therefore has no interval (25.5% wrong and 45.7% blank), and a little over half (53.2%) did not know that measles is also given only once (9.6% wrong and 43.6% blank), exactly half did not know the 1 to 4 month interval between polio administrations (7.4% wrong and 42.6% blank), and 46.8% missed the 1 to 4 month intervals between the 3 DPT shots (3.2% wrong and 43.6% blank).

Question #15: The reasons given for not vaccinating a child have been quite varied for health workers in general; the promoters in our sample are no exception. Nearly half (45.7%) of the promoters said that the common cold was reason enough for not vaccinating; almost 40% cited malnutrition and diarrhea, and only 10.6% did not identify serious illness with high fever as a reason for not vaccinating. Fifteen promoters (16%) did not answer this question.

The next five pages contain the five questions in this section with an accompanying bar graph to show the incorrect and missing answers for each question. The reader should keep in mind that Questions 11, 12, 13, and 14 were fill in the blank and Question 15 gave four alternatives where only one was correct.

11. Marta is a young woman who lives in your community and is expecting her first baby. She comes to you for advice about the vaccines she should get during her pregnancy. In order to protect her child against tetanus (the seven-day illness), Marta should receive the tetanus toxoid vaccine.

Write your answers to the following questions in the spaces provided.

- A. How many months pregnant should Marta be before she gets her first tetanus toxoid shot? 5 months
- B. How many times should Marta get the vaccine during her pregnancy? twice
- C. How many months pregnant should Marta be when she gets her last shot against tetanus? 6-8 months
- D. What is the LEAST amount of time Marta should wait between the shots she gets? four weeks

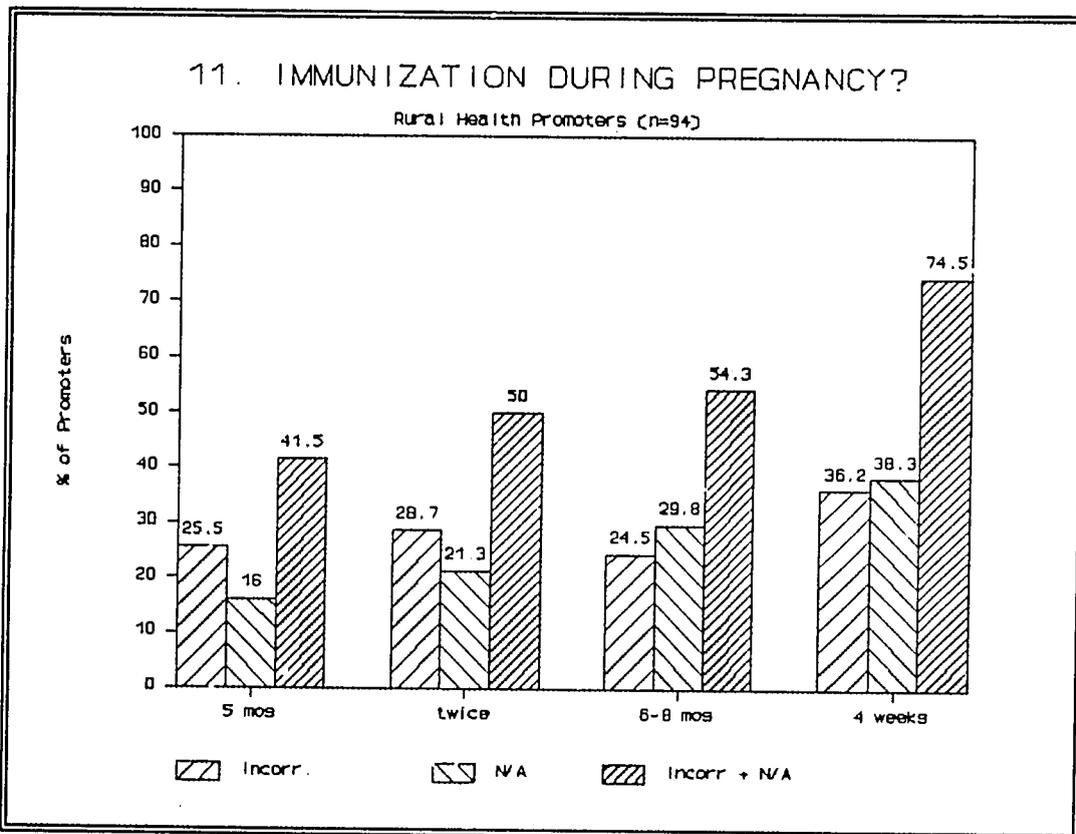


Figure 39: Tetanus Toxoid During Pregnancy

12. You, as a health promotor, should advise Marta during her pregnancy on the importance of vaccinating her future baby, and the ages at which he should be vaccinated.

How many months of age should a child be when get first gets the following vaccines? (Write your answers in the spaces provided.)

- A. BCG at birth
- B. DPT ("Triple") 2 months
- C. Polio at birth/2 months
- D. Measles 9 months

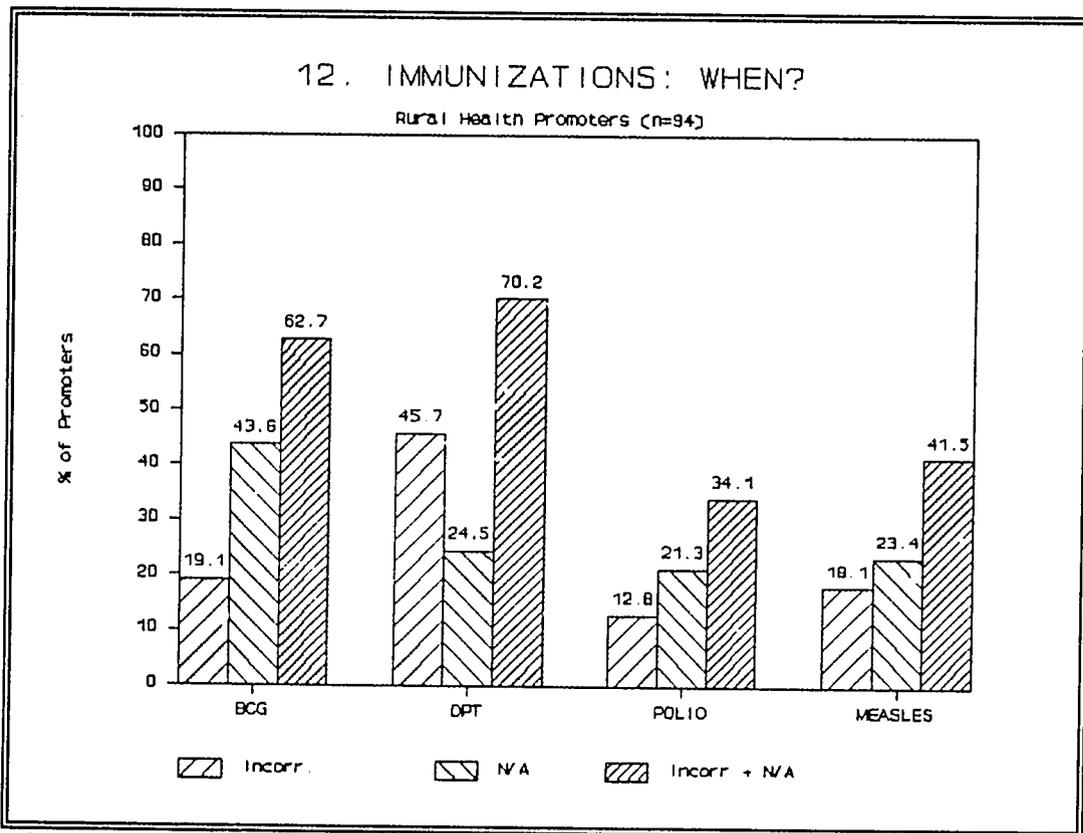


Figure 40: Correct Age for First Immunizations

13. How many times should a child receive the following vaccines during his first year of life to be protected? (Write your answers in the spaces provided.)

- A. BCG once
- B. DPT ("Triple") three times
- C. Polio three times (plus once at birth)
- D. Measles once

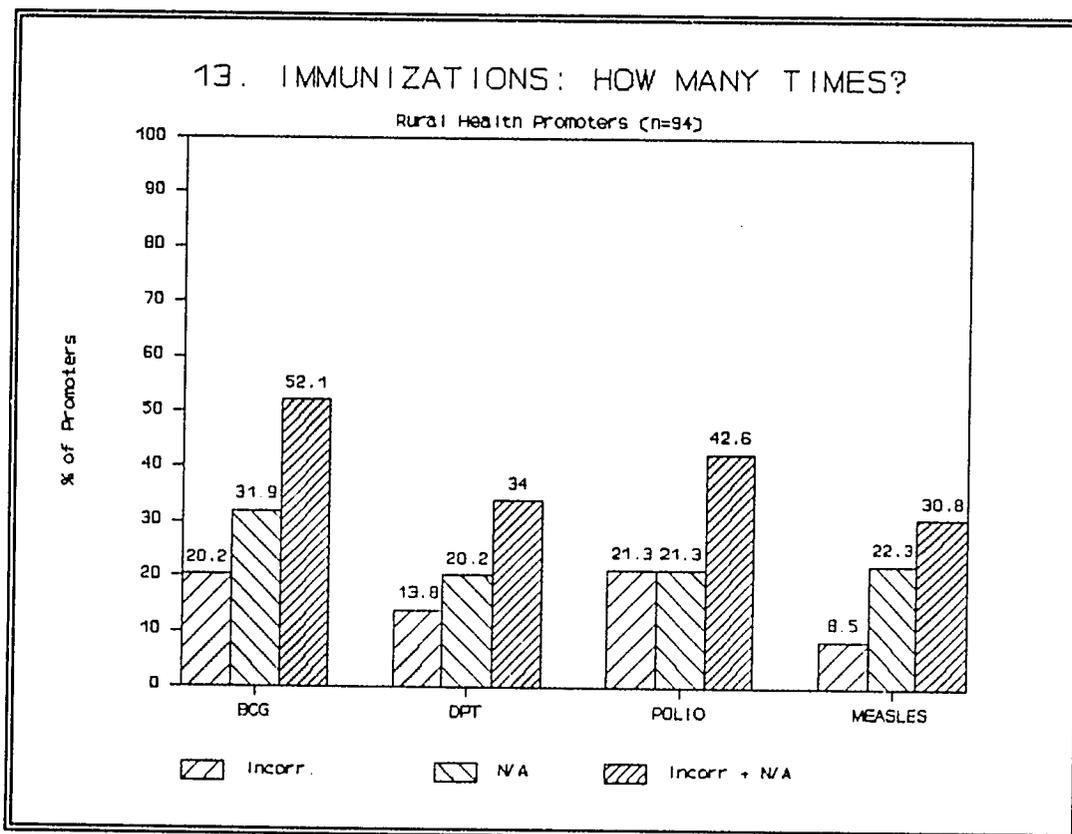


Figure 41: Number of Doses During First Year

14. How much time should pass between the doses a child receives of the following vaccines? (Write your answers in the spaces provided.)

- A. BCG none (single dose)
- B. DPT ("Triple") 1 - 4 months
- C. Polio 1 - 4 months
- D. Measles none (single dose)

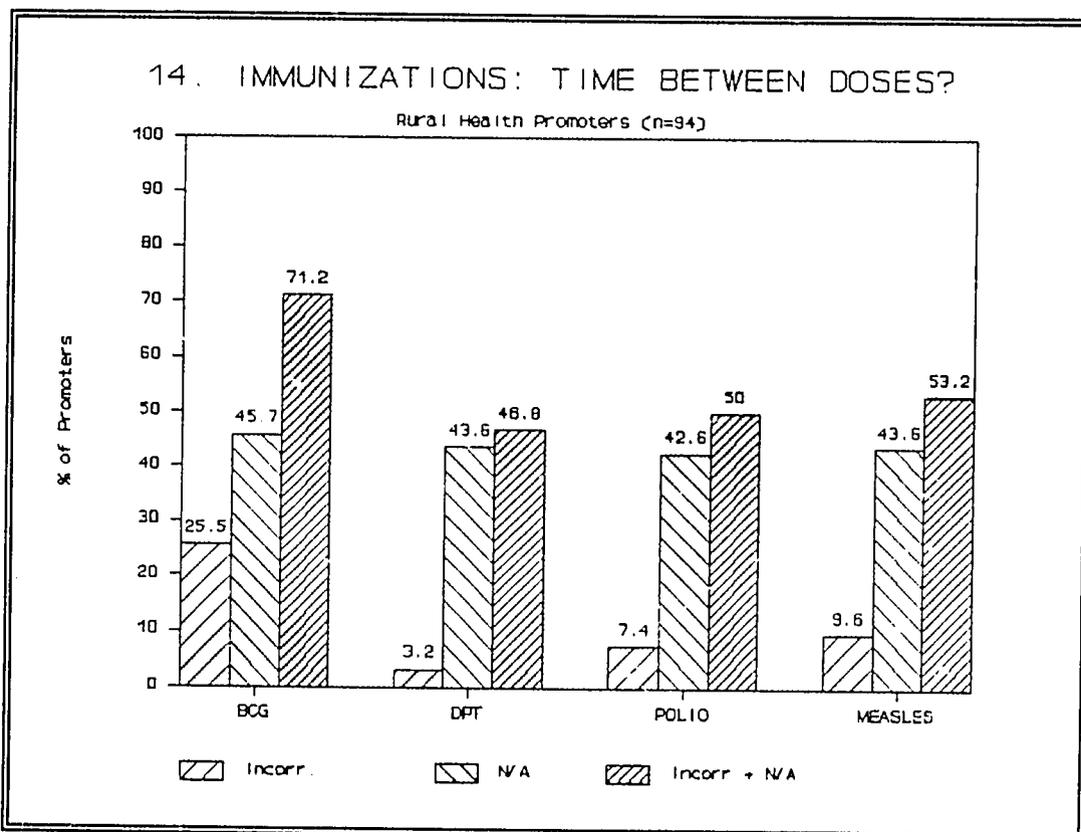


Figure 42: Time Interval Between Doses

15. When should a child NOT be vaccinated? (Underline the correct answer or answers.)

- X A. When the child is malnourished.
- X B. When the child has diarrhea.
- X C. When the child has a cold or the flu.
- D. When the child is gravely ill with a high fever.

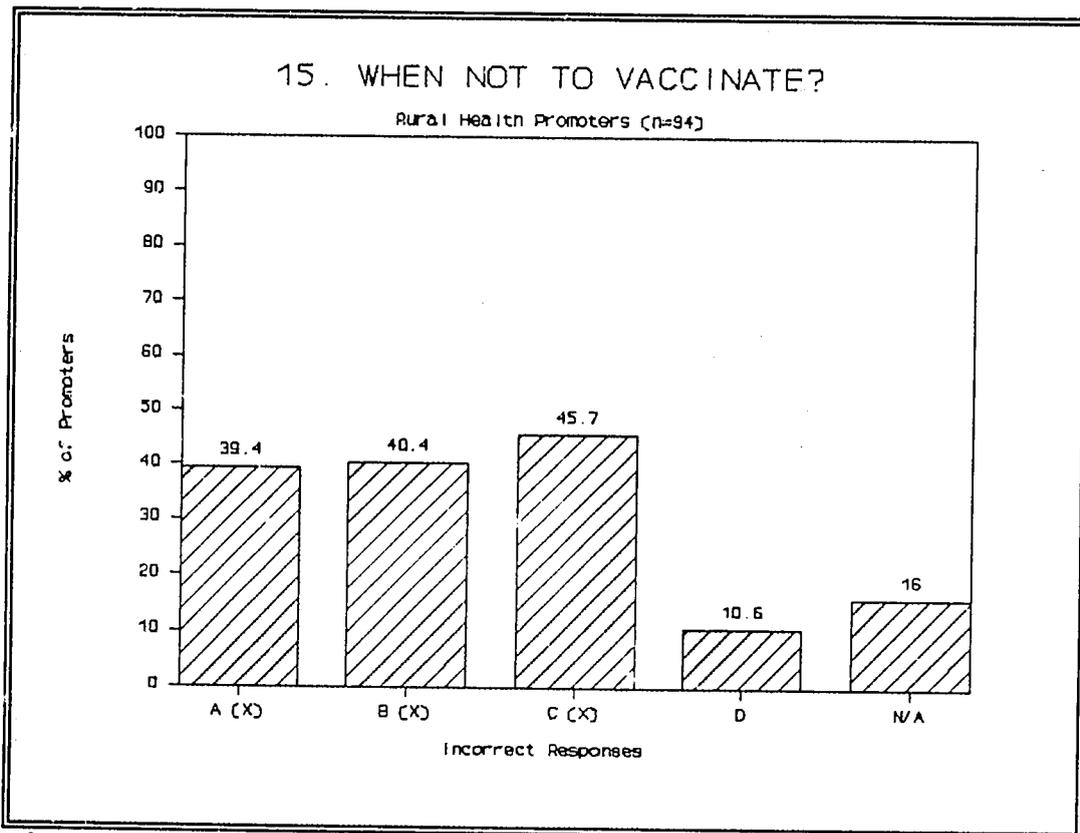


Figure 43: Reasons for NOT Vaccinating

f. Educational Messages for the Mothers (Questions 16-20)

The five questions in this section were designed to measure the promoters knowledge about when mothers should bathe their children after being inoculated, when mothers should nurse or feed children after oral polio vaccines, different kinds of reactions, treatments for febrile reactions, and when a reaction is serious and should be attended at a health facility.

Score: Section D (%) (Questions 16-20)		Mean	SD	Range
All Promoters	(n=94)	66.2	16.5	00.0-100
Sacapulas	(n=22)	70.9	21.4	00.0-100
San Lorenzo	(n=20)	68.5	13.9	35.0-90.0
San Pedro Carchá	(n=39)	64.1	11.2	40.0-75.0
Sta. Lucia Cotz.	(n=13)	61.2	22.7	00.0-90.0

As can be seen Sacapulas and San Lorenzo had scores above the mean for the entire group of promoters and San Pedro and Sta. Lucia were below. These differences were sufficiently large to be statistically significant. The distribution of total promoter scores was as follows:

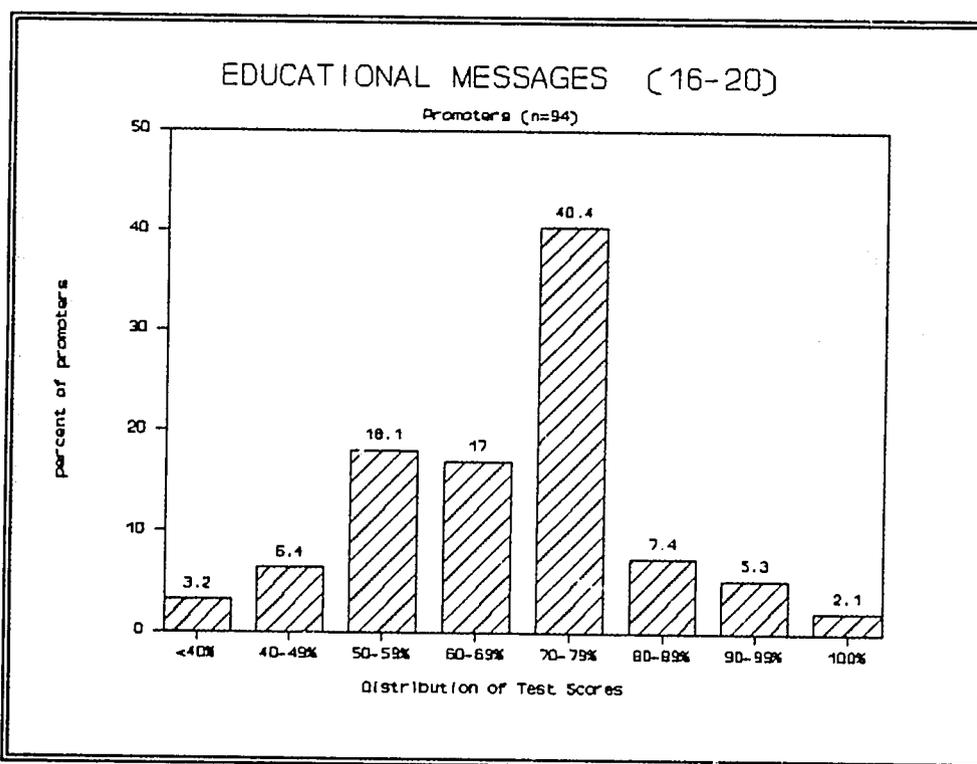


Figure 44: Educational Messages for Mothers

Question #16: Well over half of the promoters (57.4%) incorrectly said that a child can only take a bath before the vaccine is given, and almost 44.7% of the promoters did not know that there is no problem bathing a child after inoculation. Almost one-fifth (18.1%) said that one could bathe a child only after giving the vaccine and another fifth (19.1%) said the child should not bathe before or after being inoculated because the vaccine would lose its potency. Three promoters (3.2%) did not respond.

Question #17: A little over one-quarter (28.7%) of the respondents failed to correctly identify a fifteen minute wait before nursing or feeding a child after the oral polio vaccine. One-quarter said she should wait only five minutes and another 21.3% said the wait should be 2 hours. Nearly 15% claimed that no wait was necessary, and three did not answer the question.

Question #18: All the answers to this question were correct: 44.7% did not identify listlessness and loss of appetite, 14.9% did not mark nervousness, irritability and crying, 9.6% did not know that pain in the place where the vaccine was injected was a possibility, and a low 4.3% did not recognize that a slight fever was a very probable reaction. This question was not answered by 6.4% of the sample.

Question #19: Giving the correct dose of 1 baby aspirin every 6-8 hours was missed by 78.7% of the promoters. An equal percentage wrongly chose 1 baby aspirin every 4 hours, and 22% said half an adult aspirin every 4 hours. A little over 10% said that a child with fever should be given 2 baby aspirins every 6-8 hours. Nothing was indicated by 4.3% of the promoters.

Question #20: This question presented the promoters with four correct reasons for bringing a recently vaccinated child to a health facility. Almost one-quarter did not identify a fever with more than 3 days duration, 22.3% did not mark convulsions, 17% did not feel that difficulty breathing was sufficient reason, and 11.7% saw no problem with vomiting, and no desire to nurse, drink or eat.

16. What should you advise a mother regarding vaccination and bathing her child? (Mark only one answer.)
- A. You can bathe a child both before or after vaccinating him without causing him any risk.
 - B. You can bathe a child only before vaccinating him.
 - C. You can bathe a child only after vaccinating him.
 - D. You shouldn't bathe a child either before or after vaccinating him because it can cause the vaccine to lose its effect.

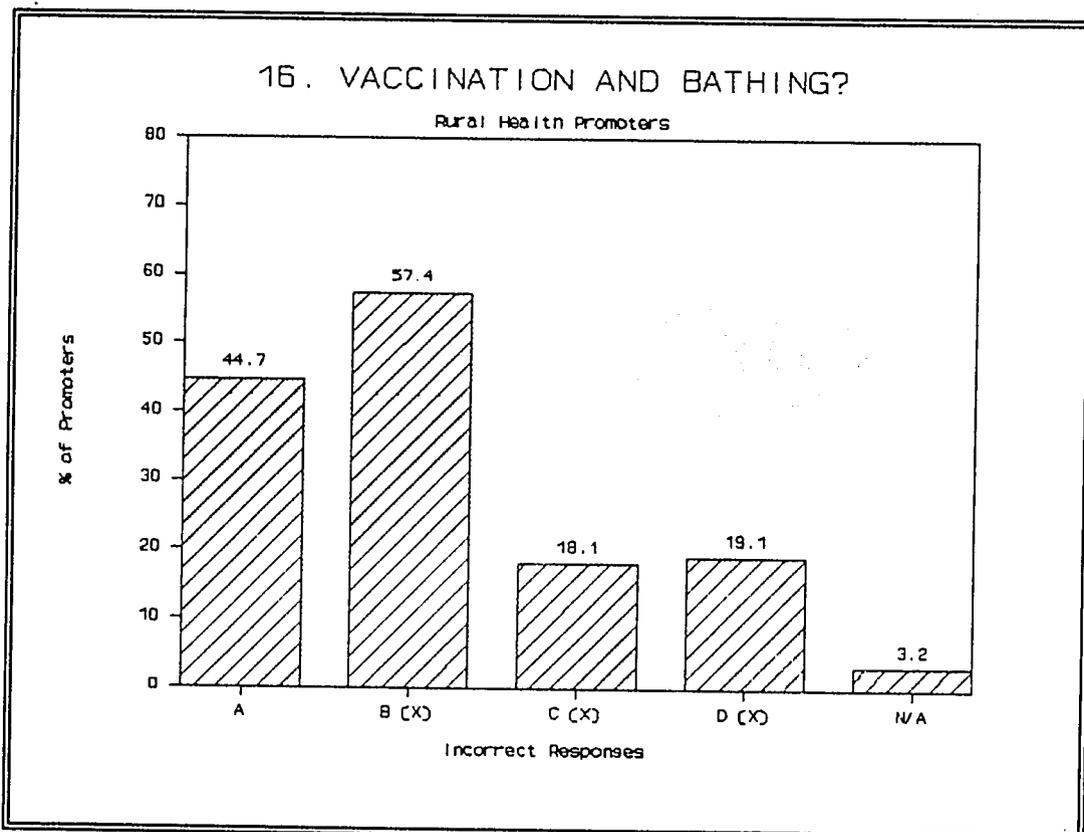


Figure 45: Advice to Mothers About Bathing Vaccinated Child

17. After administering the vaccine against polio, how much time should a mother wait before breastfeeding or feeding her child, to prevent his spitting up the vaccine? (Mark only one answer.)

- A. The mother should wait 5 minutes before breastfeeding or feeding her child.
- B. The mother should wait 15 minutes before breastfeeding or feeding her child.
- C. The mother should wait 2 hours before breastfeeding or feeding her child.
- D. The mother does not need to wait to breastfeed or feed her child.

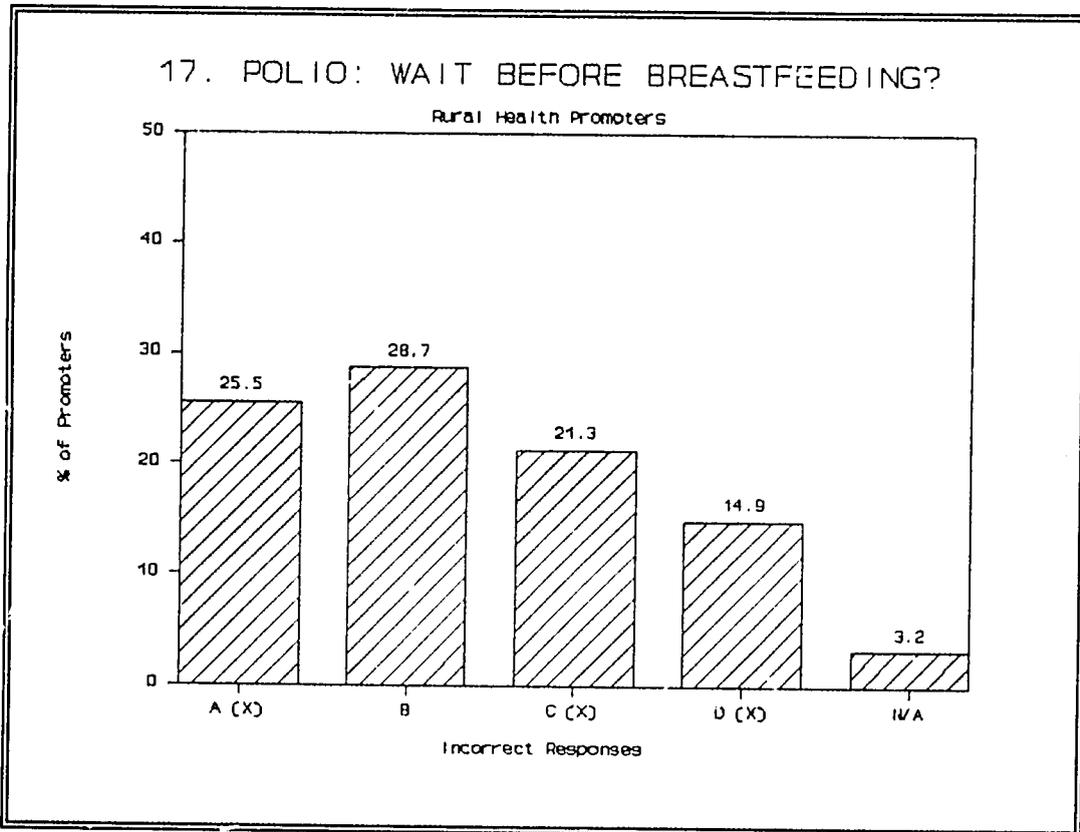


Figure 46: Advice to Mothers About Breastfeeding and Eating After Polio Vaccination

18. Which of the following are reactions a child may have to vaccines? (Underline the correct answer or answers.)
- A. Low fever.
 - B. Pain at the site where the vaccine was applied.
 - C. The child can feel a little low, with little appetite.
 - D. The child can be restless, irritable or cry a lot.

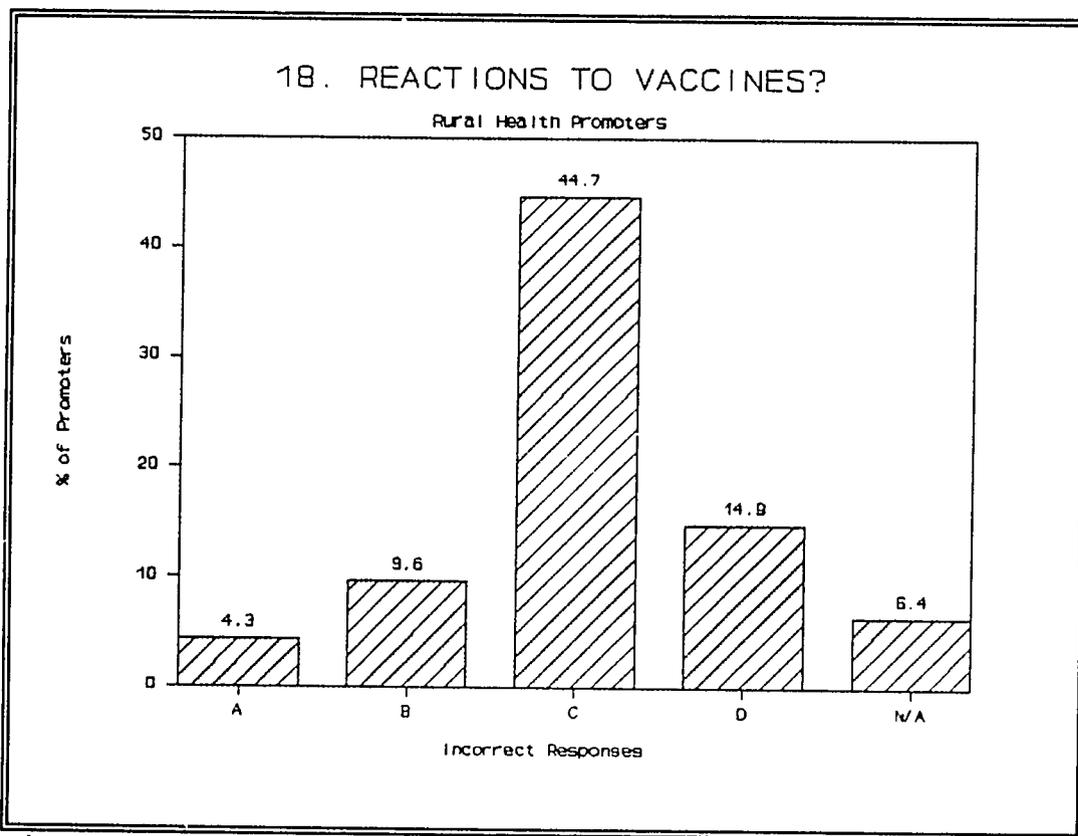


Figure 47: Vaccinations--Possible Reactions

19. If a child has a reaction to a vaccine, what should you advise his mother to give him to help alleviate the discomfort? (Mark only one answer.)
- X A. 1/2 adult aspirin every 4 hours.
 - X B. 1 baby aspirin every 4 hours.
 - C. 1 baby aspirin every 6-8 hours.
 - X D. 2 baby aspirins every 6-8 hours.

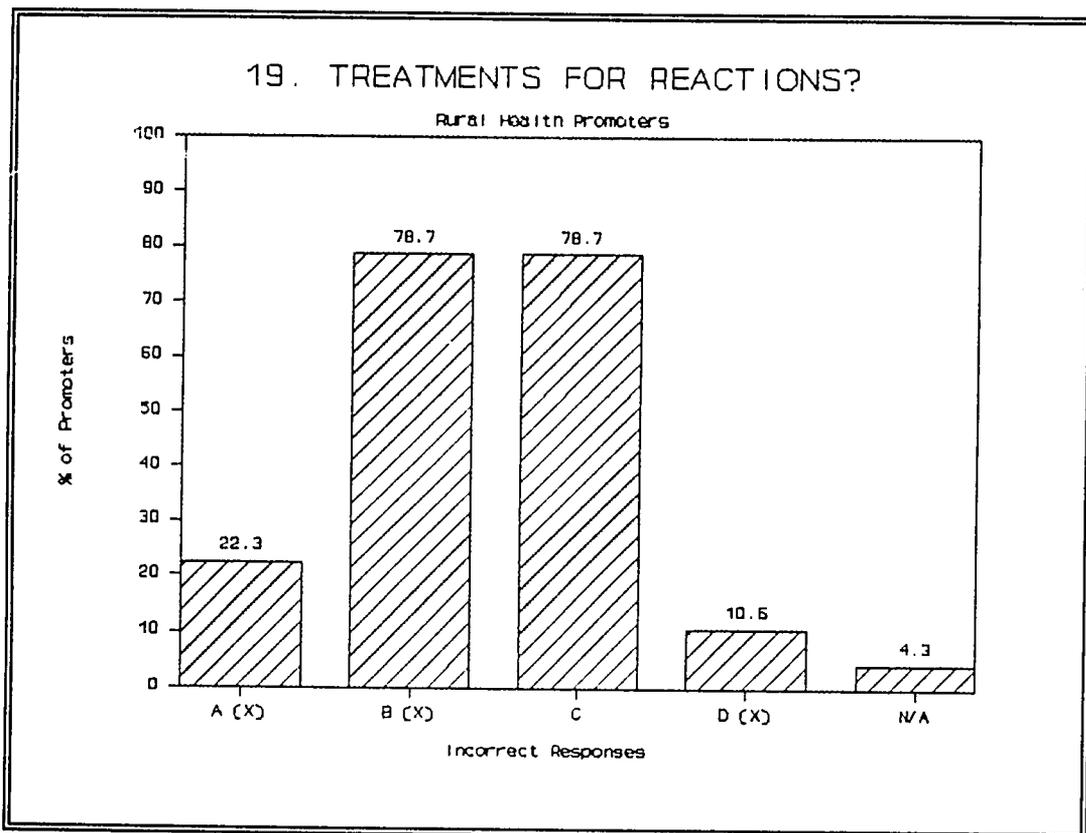


Figure 48: Advice to Mothers on How to Treat Reactions

20. When should you tell a mother that it is urgent that she take her child to the health service? (Underline the correct answer or answers.)
- A. When the child has had a fever for more than 3 days.
 - B. When the child is vomiting, or doesn't want to breastfeed, eat or drink.
 - C. When the child has difficulty breathing.
 - D. When the child has convulsions ("attacks").

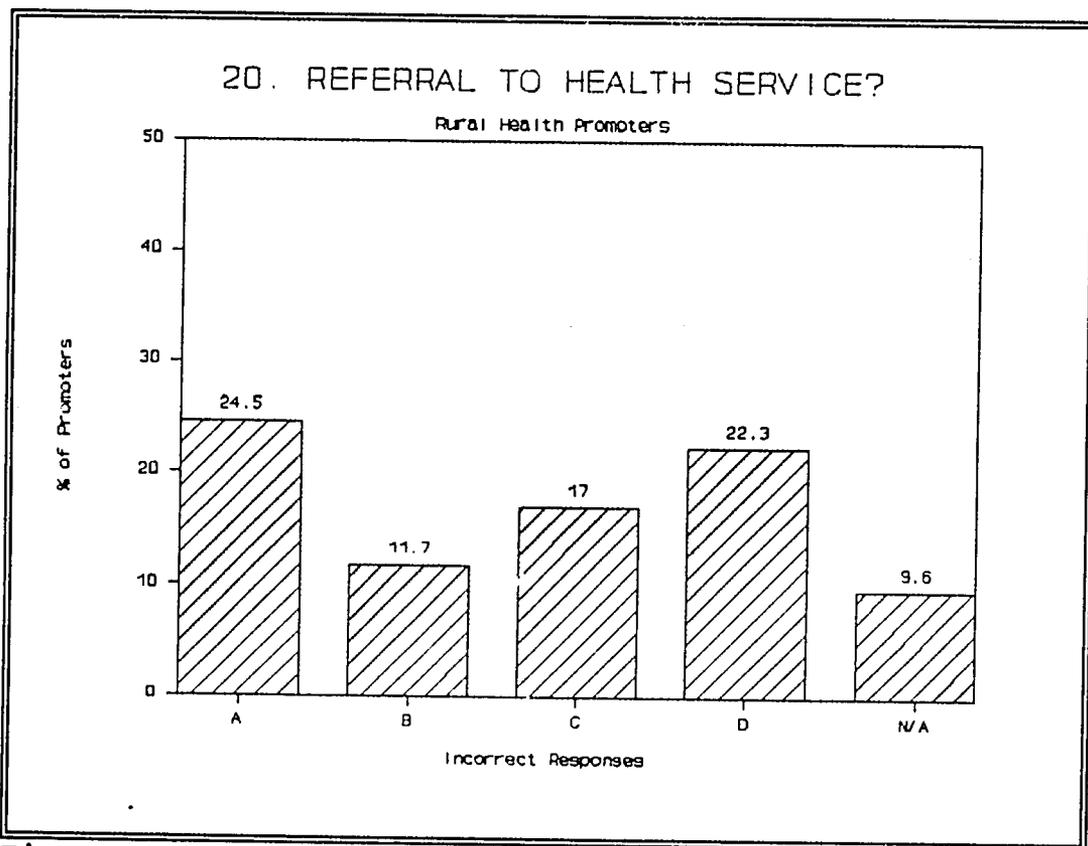


Figure 49: Reactions--When Mothers Should Be Told to Bring Child to a Health Facility

E. Conclusions and Implications for Action

1. Diarrhea and Dehydration (ORT)

a. Analysis of Test Scores

- * The results of this 18-item written test, administered to a sample of 90 rural health promoters in four health districts across the country, reflect a low level of knowledge of the management of diarrhea and dehydration, the primary cause of child death in Guatemala. Using current MOH norms as the basis for scoring these tests, the sample of health promoters achieved a total mean score of 59.4%; only two promoters scored above 80%.

No statistically significant ($p \leq .05$) difference was found to exist between mean scores for this test as a whole either between promoters by district. Nor was any association detected between promoters total test scores and age, gender, occupation, marital status or number of children. More importantly, no significant difference was found between these scores and years of experience as promoters (ranging from one month to 16 years), or when they last received training. (Of the roughly 80% that responded to this last item, nearly 75% stated they had received training in the past year.)

These findings suggest that the overall impact of training is fairly consistent across the four districts. However, as illustrated below, scores varied considerably by specific subject area, with strengths in one area in effect balancing deficiencies in another.

- * Mean scores by sub-section of the test are summarized in the following table. Statistical differences did appear between promoters by district, on some sub-sections of this test, as indicated by asterisks (*).

Mean Scores by Sub-Section of Test (%):	Promoters (n=90)
Dangers, Causes & Prevention	82.5*
Diagnosis and Referral	77.5*
Feeding and Fluids	41.9*
Case Histories	54.2*
Preparation of ORS	65.0
Administration of ORS	23.8*

- * It is important to note that while differences do exist between districts in some subject areas, no one group of promoters did consistently better or worse than any other group. There are a couple of possible explanations for this fact. First is the possibility that there exist district-level differences in the adequacy of technical knowledge by

sub-topic and/or in training skills amongst those individuals charged with the responsibility of conducting training sessions. Such factors may contribute to inconsistencies in the quality of training both between and within districts, either overall or by specific subject area.

Secondly, according to field investigators, the existence or absence of training manuals, or the version currently being used, also varies by district. In either case, where the technical content of the manuals is weak or inconsistent between versions, scores tend to be lower. Certainly where the manuals are not available, the quality of training becomes, by default, overly reliant on the skills and knowledge of the trainers.

Since these manuals should serve both as a training device as well as a reference text, improving their distribution and strengthening the clarity and technical accuracy of educational messages in key problem areas may well aid in reducing any inter or intra district disparities in training capability.

b. Analysis of Technical Content

- * Test results indicate that there is an inadequate grasp of the relationship between diarrhea and malnutrition, both in terms of recognizing malnutrition as a serious complication of diarrhea and with regard to appropriate feeding practices during and after diarrheal episodes. Considering that diarrhea constitutes one of the primary causes of malnutrition in children under five years of age in Guatemala,²⁰ this concept should be strongly reinforced in training.

- * There exists a serious lack of clarity in promoters training manuals (both current and past versions) with regard to the administration of fluids during diarrhea, and feeding during and after an episode. The content of educational messages is limited to "continue" or "do not suspend" breastfeeding/fluids/feeding. Such instructions lend themselves too easily to the misinterpretation that the child should be treated "as usual". This, in fact, was the most common response to these questions. Too, the vagueness of these messages serves to further undercut the importance that needs to be placed on the nutritional management of a child with diarrhea.

²⁰ Módulo Integrado de Supervivencia Infantil. MSPAP/INCAP. Guatemala, 1988. p. 137.

Similar messages appear in the MOH's new normative manuals,²¹ but so do instructions to "increase" the intake of fluids, etc. These kinds of inconsistencies often lead to confusion. A substantial number of promoters, in fact, marked both that breastfeeding, etc. should continue "as usual" and be "increased"--conflicting responses which would seem to substantiate our suspicion that there exists a high degree of confusion regarding current norms. The distinction between "continue" and "increase" is an important one and requires clarification. This is especially true in the case of fluid intake, an increase in which is the key strategy to preventing dehydration.

This concept takes on added importance given that nearly 15% of the promoters did not recognize that diarrhea can lead to dehydration--a primary focus of diarrheal disease control efforts. A similar percentage of promoters indicated that they did not consider diarrhea to be dangerous. Most disturbing of all is the finding that between one-quarter to one-third of the promoters indicated a "reduction in" or "withholding of" breastfeeding, fluids or food as appropriate treatment during an episode of diarrhea. Furthermore, over 10% of the promoters indicated that less food than usual should be given a child following a bout of diarrhea in order to "rest the stomach"; 40% of the promoters indicated that only soups and "atoles" (a thick gruel-like drink) should be given.

Given the high morbidity and mortality rates due to dehydration and malnutrition in Guatemala, it would behoove the MOH to provide a clear and consistent set of instructions with regard to the prevention of these complications as a consequence of diarrheal disease.

- * A significant difference in adequacy of knowledge of the preparation of packaged versus homemade oral rehydration solution was detected amongst the promoters, with accuracy in the preparation of the homemade solution being roughly 50% lower.

Most notable was the wide range of responses to the quantity of ingredients to add, with some of the proposed preparations resulting in potentially toxic concentrations of sodium, or in levels of glucose which would serve to diminish the absorption of water and sodium--thus decreasing the efficacy of the therapy--or even aggravate the case by increasing the diarrhea, and thus potentially, the degree of dehydration.

²¹ Manual de Normas y Guías de Atención Materno Infantil. Depto. Materno-Infantil, DGSS/MSPAS. Guatemala, 1988.

²² Módulo Integrado de Supervivencia Infantil. MSPAS/INCAP. Guatemala, 1988.

One common source of error appears to be the confusing of teaspoons and tablespoons. This source of confusion is in turn exacerbated by an apparent confusion between current and past MOH norms, where measurements which were previously expressed in one unit are now expressed in another--or in an entirely different quantity.

A related issue is the lack of clarity in how to take these measurements. For example, while MOH norms for institutional personnel currently specify "full glasses" and "level teaspoons", the promoters manuals do not. This is an important detail since the difference between a "heaping" teaspoon and a "level" teaspoon results in roughly a 2:1 ratio, with the former easily approximating a level tablespoon. Thus even amongst those participants who indicated the correct measurements, a wide margin of error may still exist if one were to analyze the concentration of each ingredient in the resulting preparation.

The existence of such high levels of confusion between both measurements and norms suggests an urgent need for a new approach to teaching the homemade ORS recipe. One solution may be to develop and widely publicize catchy "jingles" to aid recall, perhaps even based on the tune of a popular "Ranchera". However, if no adequate solution can be found, the MOH may be faced with the need to reconsider the benefits of promoting the homemade preparation. On the other hand, until the MOH can assure an adequate and constant supply of ORS packets, especially to the most isolated communities where the need is often greatest, the decision to suspend promotion of the homemade version could have equally serious consequences.

Unfortunately, the wide distribution and exclusive promotion of packaged ORS may not provide the perfect solution either since it appears there may already be a significant degree of confusion between the two types of ORS, at least amongst this sample. Nearly one-quarter of the promoters indicated that some quantity of orange juice should be added to the packaged preparation. A lesser, but still disturbingly high, percentage would also add some quantity of salt, sugar or bicarbonate of soda to this mixture. These are serious misconceptions which deserve urgent attention.

It may also be necessary for the MOH to reconsider the appropriateness of stating in its most recent institutional norms that "4 glasses equal approximately 1 liter". A nationwide household survey carried out by DataPro, S.A. under contract to USAID/Guatemala discovered in 1987 that the watervessel size mothers indicated they would use in the

preparation of ORS ranged from under 175 cc to over 375 cc²³--resulting in a "4-glass liter" measuring anywhere from less than 700 cc to over 1500 cc. Either extreme would produce a less than optimal, or even dangerous, concentration for the purpose of rehydrating a child. Recognition of liter size vessels was little better.

Clearly, a more precise means of standardizing measures needs to be proposed. Making a clear and consistent distinction between "teaspoon" and "level teaspoon" would be a step in the right direction. With regard to water vessel size, both promoters and MOH personnel should be encouraged to analyze and practice the measurement of one liter using those containers commonly available in their communities. Once an appropriate vessel size is identified, its exclusive use should be emphasized, along with the corresponding explanations of the potential dangers of using inappropriate measures.

The near omnipresence of soft-drink bottles in even the smallest communities may offer one acceptable solution. Where liter size soda or beer bottles exist, the solution is easy. Where only the small "one-serving" soda bottles are available, promoters could be taught to fill the bottles to the level to which they are customarily filled by bottling companies. Three of these measures approximate very well one full liter.

- * The combined mean scores achieved by promoters for the two questions related to the administration of ORS were the lowest of any of the six sub-sections of this test, below 25%. The non-response rate was also the highest from amongst all subsections.

It is of concern that such a high percentage of participants indicated that ORS should be administered in fixed quantities or according to rigid schedules, especially where variables such as weight, severity of the diarrhea or degree of dehydration were not specified in the questions. Attempting to adhere to detailed schedules and instructions from a promotor or health professional can be both confusing and frustrating for a mother. It can also increase the risk of over or under hydrating a child if calculations are not commensurate with real fluid needs.

According to recent studies, unless a child presents signs which would make oral rehydration contraindicated, he should be permitted to take ORS on demand. These same studies demonstrated that a child will, in fact, consume the quantity

²³ Water Vessel Size for the Preparation of Oral Rehydration Solution. DataPro, S.A. under Work Order No. 520-0000-0-00-7324-00 of the United States Agency for International Development (USAID). Guatemala, May 1987.

of ORS he needs according to the degree of dehydration suffered, thus markedly reducing the risk of under or over hydration.

- . Besides being safer for the child, it is far less complicated to teach promoters (and for promoters, in turn, to teach mothers) to administer "as much ORS as often as the child will accept it" than it is to expect them to recall complicated schedules or quantities which will vary according to the child's weight or condition. The transmission of these simplified messages--coupled, of course, with clear instructions regarding signs and symptoms which require referral--will go a long way in facilitating the task of imparting knowledge of the adequate management of diarrheal disease.

- * Overall, the promoters scored quite well on those questions related to diagnostic and referral symptoms when presented as an "out-of-context" list. Even so, the diagnostic signs requiring reinforcement are three: recognizing decreased urine output as a danger sign and irritability as a possible sign of dehydration, and the "skin-fold test" as a useful means of determining the presence of dehydration. Amongst referral symptoms, the presence of "high fever" was the least widely recognized, an important finding programmatically given that this sign should prompt referral regardless of its cause. The limited use of "hands-on" practice in examining a patient may be one of the factors contributing to the low level of recognition of these signs amongst promoters.

- * Once these diagnostic signs and symptoms are placed into more of a real-life context requiring treatment decisions, however, the scores drop. As evidenced by the results of the three case history questions presented, the majority of promoters are already generally familiar with the increase fluids/ORS/referral options for treatment. What appears to be lacking though is a theoretical framework which will enable them to match patient status with the corresponding treatment plan. As things now stand, the tendency is for promoters in this sample to go a step beyond the indicated treatment at any given stage. Thus a patient suffering mild-moderate dehydration, for example, is referred to the health service "as soon as possible". While medically such advice is anything but harmful to the patient, it does present serious implications for a health care system already operating under conditions of extremely limited human, financial and material resources, not to mention the demands it places on mothers with limited time to meet family obligations.

Although the promoters new training manual does present a list of signs and symptoms of dehydration, it does not specifically present a diagnostic/treatment plan for promoters to follow in analyzing a case of diarrhea and degree of dehydration. The

introduction of the MOH's "Plan A/B/C" (ask, observe, explore, etc.) scheme as an integral part of training methodology, coupled with practical experience and the use of case histories as mutually reinforcing training techniques, could go a long way in providing promoters the framework necessary to making more resource efficient decisions. We have no reason to suspect that promoters would be incapable of integrating the MOH's diagnostic and treatment plan into their current knowledge; on the contrary, it would likely serve to provide coherency to what is probably perceived by many as a rather disjointed list of details. Such a strategy is also useful in making progress towards the goal of increased self reliance at the local level by providing people with knowledge which will enable them to exercise more control over their lives.

- * With respect to causes and treatment of diarrhea, it is also interesting to note that while promoters appear to be generally cognizant of current medical teachings in these areas, they also commonly responded according to traditional folk wisdom in these matters, reflecting a kind of pluralistic approach to learning. Thus we find "evil eye" to be widely considered a cause of diarrhea, and antidiarrheics, Vitamin B injections and massaging the stomach to be viewed as appropriate treatment measures.

This finding would seem to argue for the need to explore and refute, where necessary, local beliefs that may be detrimental to a patient's health and reinforce those that are beneficial. In general, training manuals say virtually nothing about traditional beliefs which continue to be of importance to a significant number of promoters in our sample.

2. Immunization

a. Analysis of Test Scores

- * The total scores on the 20 EPI questions, given to 94 promoters in four Health Districts, were alarmingly low reflecting a lack of the basic knowledge vital for the extension of immunization coverage. The total mean score was 67%, slightly better than the test on diarrhea and dehydration. When the scores were disaggregated by Districts, gender, age, marital status, number of children, occupation, length of time as a promoter, and the date of the last training, and analyses of variance were performed, none of the subgroups as defined by these independent variables were significantly different ($p < .05$).
- * There were, however, some distinct differences in the scores on the four sections of the test: general knowledge of immunization (Questions 1-5), knowledge of immunopreventible

diseases (Questions 6-10), vaccination scheme (Questions 11-15), and educational messages for the mothers (Questions 16-20). The best mean score of 78.9% was on the knowledge of immunopreventable diseases and the lowest, 49.5%, was on the details of the vaccination scheme. The mean score for general knowledge of immunization was 74.2%, the score of 66.2% on educational messages for the mother was just below the mean for the entire test. Again, when disaggregated by District, there were no statistically significant variations on the scores for the four promoter subsamples.

Mean Scores by Sub-Section of Test (%):	Promoters (n=94)
General Knowledge	74.2
Immunopreventable Diseases	78.9
Vaccination Scheme	49.5
Educational Messages for Mother	66.2

The specific causes for why no one group of promoters did any better than another is difficult to determine. The proposed reasons for the performance on the Diarrhea and Dehydration test are most probably applicable to the EPI test as well.

b. Analysis of Technical Content

- * It is important for promoters to know what their role in vaccination activities consists of, particularly when it comes to educating and informing community residents about necessity to immunize pregnant mothers as well as young children, teach about reactions, keeping a record of children and mothers at risk, and being able to recognize immunopreventable diseases. Almost one-quarter did not feel that record keeping was important, one-fifth did not mark teaching about reactions and visiting unvaccinated women and children, 15-20% did not recognize their role in promotion and participation in vaccination activities, almost the same number did not realize they should teach community resident about when and how often children should be immunized. Over 90% of the promoters knew they should teach community residents about vaccines, the immunopreventable diseases, and the risks taken when not immunized.

Almost half the promoters do not have any conception of vaccination coverage, and nearly one-quarter did not recognize the importance of training for those who participate in immunization activities. Some 15% did not recognize the importance of vaccine handling and almost as many had no idea about community participation. About one-fifth of the promoters could not correctly identify the six immunopreventable diseases, and when asked to name the

diseases prevented by BCG and DPT, close to half could not.

These results point to a real need for basic education about immunization and the role of the promoters. Quite possibly, these are concepts which were not strongly emphasized during their original training, or else it was so long ago and with no refresher course, they simply did not remember.

- * When given the five questions on the signs of the five EPI diseases, about one-fifth, with some variation by disease and some very well known signs, of the promoters did not mark the all four of the correct choices. Although the scores on this section were the highest, it should still be of concern that so many promoters did not recognize such basic characteristics. This also has implications for recognizing possible epidemic outbreaks which require prompt notification of public health officials and the referral of patients requiring immediate medical attention.
- * For health promoters to help increase immunization coverage, it is vital for them to educate and persuade mothers to have their children and themselves when pregnant inoculated at the appropriate time with the correct number of doses within specified intervals. Unfortunately, the scores for this section (Questions 11-15) were the lowest and need to be carefully examined to determine what should be done.

The knowledge of when, number of doses, and minimum time between doses for pregnant women to receive tetanus toxoid is unacceptably low. According to the results of a recent survey,²⁴ the fact that coverage for this vaccine is the lowest of all in the EPI group should make improvement of coverage one of the highest priorities. The two most recent norms^{25 26} for trainers do state that the mother should receive two doses beginning in the fifth month of pregnancy, but a recent training manual for voluntary personnel does not contain anything about pregnant mothers and tetanus toxoid

²⁴ In a sample of 4,597 women who gave birth in the past five years, only 13.6% received a tetanus toxoid vaccination. The percentage of indigenous mothers was 6.9 as compared to 18.6 for ladinos. These figures are from Guatemala: Encuesta Nacional de Salud Materno Infantil 1987, Ministerio de Salud Publica y Asistencia Social, INCAP, and Institute for Resource Development/Westinghouse Health Systems.

²⁵ Las Vacunas del PAI. MSPAS/DGSS/División de Vigilancia y Control de Enfermedades. Guatemala, Noviembre de 1987.

²⁶ Manual de Normas del Programa Nacional de Inmunizaciones. MSPAS/ Unidad Ejecutora de Programas Aplicativas/Division de Vigilancia y Control de Enfermedades. Guatemala, enero de 1988.

immunization.²⁷ The fact that about half of the promoters interviewed did not know the minimum essentials of tetanus toxoid procedures, clearly indicate deficiencies in recent training and/or the lack of training in current norms.

The promoters' knowledge of when BCG, DPT, polio and measles should be given is also low; the numbers who did not know that BCG should be given at birth and DPT at two months, approaches one-quarter of the sample; and for polio and measles, the lack of knowledge, was between one-third and one-half.

The confusion here may, in part, be related to changing norms. The November 1987 norms, cited above, state that BCG should be given to children under one year of age, but the most recent norms changed the wording to "from birth." In the case of DPT, there was a change from 3 months in the old to 2 months in the new norms. Since the test was corrected using the new norms, the reason for the low scores may be simply that the promoters have not yet received refresher courses. A closer examination of the data, however, indicate this may only apply to some promoters. As shown in Figure 40, the number of promoters who did not answer the question for BCG and DPT was 43.6% and 24.5%, respectively, indicating they simply did not have any idea and did not want to guess. For polio and measles, as well, the number who did not provide a response was considerably higher than those who did. The data, therefore, indicate low levels of knowledge of both current as well as past norms.

- * Making sure that mothers have their children vaccinated to correct number of times is extremely important; failure to do so greatly reduces immunization coverage. The recent survey cited above, shows that for DPT and polio the percent of children vaccinated drops by approximately 15 from the first to second and by another fifteen percent from the second to the third dose. If promoters are to be effective agents for assuring proper coverage of these vaccines, they must know the number of doses and the corresponding time interval between them. For both DPT and polio, the number of promoters who could not supply the correct number and interval was surprisingly large in both instances; less than half but more than one-third could not indicate the correct number of doses and half did not know the intervals.

Again, there are some differences between the old and current norms on the intervals for both DPT and polio. In the old the DPT interval was a minimum of 6 weeks to a maximum of one year as compared to the current 1-4 months for both DPT and polio. The old interval for polio was 6 weeks. But for both DPT and

²⁷ Guia de Capacitacion Para Personal Voluntario: Programa Ampliado de Inminizaciones. MSPAS/Unidad Ejecutora de Programas Aplicativos/Departamento de Vigilancia y Control de Enfermedades. Guatemala, diciembre de 1986.

polio, the number who provided no answer was over 40% of the 50% who did not give the correct response.

- * When not to vaccinate a child has been a subject of disagreement in public health circles for a long time. There appears to be general agreement that no vaccination should be given if the child is seriously ill; but then, what does seriously ill mean? According to Dr. Robert Northrup, technical director of PRITECH, the criterion of a fever above 39°C or 102°F should be used. Among our sample of promoters, however, there is great confusion. Approximately 40% said that malnutrition, diarrhea, colds and flu are all reasons not to vaccinate; only 10% did not also include serious illness.

Since so many promoters, and most certainly other health workers as well, use these and similar criteria for not vaccinating, how many children are not immunized during routine EPI activities and what effect has this had on coverage? Keeping in mind the high rates of malnutrition and the high prevalence of diarrhea and upper respiratory infections in Guatemala, the number who are not vaccinated but should and could have been is most probably quite significant; to our knowledge, no quantitative data exists and one can only venture an educated guess--10% would appear reasonable in the current context. Both sets of norms cited above state that seriously ill children should not be vaccinated, but neither define what is meant by serious.

- * One of the most serious problems for the successful implementation of an immunization program is the reluctance of some mothers to have their children vaccinated. Recent surveys have shown a variety of reasons, but the most common is the fear of adverse reactions and the possibility of getting the disease that the vaccine is meant to prevent. The role of the promoter is therefore very important for the education of the mother about vaccines, what to do if a child has an adverse reaction, to inform her that she can bathe the child any time before and after vaccinations, and the proper amount of time to wait before nursing and feeding after polio vaccination.

Overall, the recognition of the signs of adverse reactions were well known, except for a generalized "low" feeling accompanied by loss of appetite. A problem does exist in the amount of baby aspirin that should be given for febrile reactions. Over three-quarters said 1 baby aspirin every four hours rather than one every 6-8 hours as dictated by current norms. This is probably the best example of the persistence of the old norm of 4 hours as shown by the equal number of promoters who incorrectly marked the old and failed to recognize the new; almost the entire sample answered the question.

- * Significant misconception still surrounds proper bathing practices before and after vaccinations. Almost half the

promoters did not know that no precautions need be followed regarding bathing. Correcting this belief would be helpful in convincing mothers that vaccinations are really not anything out of the ordinary and that she does not have to do anything special.

- * When presented with four valid reasons for bringing a recently vaccinated child to the health service, 10-25% of the promoters failed to recognize them. Additional emphasis should be made in training, supervision, monthly meetings and reference materials. It should be kept in mind that a minuscule number of reactions can be fatal, but the news of such an event can spread very rapidly. The adverse publicity can and will cause many families to decide not to take a chance with their children.

V. DISCUSSION AND RECOMMENDATIONS

The ethnographic field observations showed that the promoters are well accepted, are viewed as community leaders, and as such, receive the respect, confidence and community support traditionally accorded to most local leaders. Relations between promoters and other community leaders or representatives of development agencies were also reported to be quite positive, with much coordination of activities occurring in most cases.

There was virtual consensus amongst all interviewees regarding the limitations promoters are faced with. These can be summarized into three basic categories: the lack of equipment, supplies and medicines necessary to attend patient needs; insufficient training, support, and in particular, supervision; and the shortage/lack of technically accurate and up-to-date reference materials. Promoters also mentioned a shortage of time to dedicate to their communities.

Promoters, in particular, believe they could be far more effective in their roles, both qualitatively and quantitatively, if they were to receive the necessary technical and moral support and supervision of district personnel. The institution of monthly meetings and/or monthly supervisory visits was one of the most commonly proposed solutions.

Too, all insisted that even the most basic of equipment, supplies, medicines and educational materials would greatly facilitate the execution of the activities they are expected to carry out. Several proposed that the MOH return to its former policy of distributing the medical kits which used to be standard issue for all rural health promoters.

MOH personnel also felt that promoters need and deserve more and better incentives for their work, if not outright compensation. Suggestions included providing them with food rations such as those distributed by CARE; the payment of regular, timely and higher per diem rates for their participation in any and all training activities; and the provision of at least a minimal stipend. This last point was strongly seconded by the majority of the promoters. District personnel also recognize that increased supervision and material support would serve as an important stimulus to promoters, but generally feel constrained by their institution's own material, human and financial resource limitations.

The conclusions drawn from our observation of promoters at work in the study communities are most probably applicable to most promoters working in Guatemala. The number of promoters who are active is unknown and estimates ranging from 5,000 to 10,000 are nothing more than educated guesses. Clearly, the promoter is a tremendous resource for primary health care in general and, more specifically, for diarrheal disease treatment and the expansion of immunization coverage. The written tests, however, have shown

that the promoters' current knowledge of diarrhea treatment and diagnostic procedures is seriously deficient. Furthermore, the correct knowledge about vaccination procedures and schedules is also inadequate.

The question, therefore, is whether or not the current work of the health promoters is having any impact on the use of ORT and the expansion of immunization coverage? The answer most certainly varies according to health districts and specific communities. In our sample, the effectiveness of the promoters appears to be greater in San Lorenzo and San Pedro Carchá than in Sacapulas, and in Las Cruces and Belice it is too soon to tell. The answer would therefore be a very qualified yes. But the serious gaps in medical knowledge and treatment procedures are the greatest obstacles to promoter effectiveness.

We believe that the administration and management of the EPI/ORT Project should reconsider the role of the health promoter as a part of programmed activities. The current training programs, reference materials, and institutional support of the promoters is inadequate in terms of effort and financial commitment. It is our feeling that if promoters are to receive continued project support, a larger share of the budget should be allocated to promoter training, supply, and supervision. If the choice is not to increase the effort with promoters, it would perhaps be more financially sound to cease promoter training and obligate the funds to other project activities such as cold chain maintenance, ORS production, or mass media promotion.

Studies in other countries²⁸ have long established the potential effectiveness of volunteer community workers in the implementation of ORT and EPI activities. The most important factors in these early studies was the careful selection, training, supply, and supervision of community workers. Without the integration and continuity implied by these activities, the beneficial impact of volunteer personnel on mothers' behavior is, at best, minimal.

Assuming that volunteer health promoters will continue to have an important role in the implementation of project activities and as a consequence of our findings, we make the following recommendations:

1. The specific duties and responsibilities of the promoters should be established for ORT and EPI activities. The duties should be prioritized in relation to the numerous other

²⁸ Report on Bangladesh Oral Rehydration Program, J. Chakraborty, ICDDR 1980; Home Treatment of Childhood Diarrhea in Punjab Villages, Kielman and McCord, Johns Hopkins 1977, Beneficial Effects of Oral Electrolyte-Sugar Solutions in the Treatment of Children's Diarrhea -- Studies in Seven Rural Villages (Philippines), International Study Group, John Snow Public Health Group, 1977.

activities to determine if, in fact, the promoters can effectively comply. Consideration should be given to limiting activities to realistic goals that can be reached without interfering with promoters' livelihood.

2. Training for promoters should be redesigned with a greater emphasis on practical experience and preventive activities. Training manuals should be redesigned and updated to reflect current norms. Furthermore, all trainers should have a clear understanding of all current norms and procedures.
3. Consideration should be given to holding training sessions in the promoters' native languages in selected linguistic regions. Not only will the promoters have a better understanding of what they are supposed to do, but they will also be able to give more comprehensive and credible explanations to monolingual parents.
4. Brief reference materials and normative updates should be appropriately designed and distributed to all active promoters. A promoter newsletter, although costly, would provide an additional means of communicating new procedures as well as provide a new linkage to the MOH.
5. The monthly meeting of promoters at the district-level should be held for all promoters involved with project activities. The MOH personnel holding the meetings should be trained to make the sessions interactive and productive ways of reinforcing specific procedures and norms. For instance, a different theme or aspect of ORT/EPI could be emphasized each month in the form of structured and segmented refresher courses. This would also be the appropriate place to distribute and discuss the content of the proposed newsletter and/or normative updates.
6. Although we recognize that it is impossible under current economic conditions for the MOH to pay a "stipend" to promoters, they should receive an adequate per diem to cover their expenses while attending training sessions, refresher courses, and monthly meetings. The increase in the cost of living in Guatemala would infer undue hardship on promoters if they had to pay their own way; many potentially good and dedicated individuals simply would not be able to receive training.
7. From our interviews and focus groupd with mothers, we suggest that the MOH explore the possibility of implementing complementary educational methodologies to supplement current training efforts. The use of "social marketing" techniques could well prove to be one effective alternative. Most educational messages which need to be transmitted lend themselves quite well to being put to music, for example. Short songs or jingles could be authored to aid recall not only for community members, but for promoters and MOH personnel as well. Given the vast musical talent in the

country, it would not be difficult to identify a group or individual capable of producing such music with popular appeal--or perhaps even sponsor a national contest of some sort.

8. Given the inaccessibility of countless tiny communities here in Guatemala, it would be worthwhile to tap into those networks which already reach them. Bottling companies, for example, have already established extensive distribution systems. Many of these companies sponsor regular contests based on the use of bottle caps. If these companies could be convinced to use a similar strategy for transmitting health messages, the impact could potentially be great. Snack foods and cereals also receive wide distribution, and games or educational messages are often printed on these packages.
9. According to our field reports, community members in San Lorenzo, San Marcos, demonstrated a significantly higher level of knowledge as compared to other communities, especially with regard to EPI--higher, in fact, than amongst the promoters themselves. Use of the channelling strategy and the painting of health messages on village walls throughout the department may provide part of the explanation. It could prove quite informative to explore what other factors may be contributing to this situation, and study their applicability to other communities.
10. We also recommend that further operational research be done on the amount of time promoters and mothers spend administering ORS. This is particularly important for determining how many families that can be covered by a promoter to assure mothers' compliance in the use of ORT. Taking into account the seasonal variation in diarrhea rates, it should be possible to estimate the number of children in a population who have diarrhea at any given time. The number of promoters per probable cases should then be adjusted to be within realistic limits of required time to teach and demonstrate the correct use of ORT.
11. Further ethnographic case studies to investigate the effectiveness of training, retraining and the dissemination of new norms should be carried out by the Investigative Unit of the MOH Human Resources Division. Personnel from this Unit were involved in the current study and were trained in qualitative methodologies. These participants demonstrated good observational abilities and with further training should be able to take part in all project related research activities; with adequate experience, the Unit should be able to design and administer data collection and analyses.

VI. APPENDICES

CONTINUATION
SHEET

UNITED STATES INTERNATIONAL
DEVELOPMENT COOPERATION AGENCY
AGENCY FOR
INTERNATIONAL DEVELOPMENT

- FIO/C
 FIO/P
 FIO/T
 PA/PR

Worksheet Invoice

PAGE 4 OF 8 PAGES

1. Cooperating Country

Guatemala

2a. FIO Number 70299
520-0339-3- 60167

2b. Amendment
 Original OR No.

3. Project Number and Title 520-0339

IMMUNIZATION AND ORAL REHYDRATION THERAPY
SERVICES FOR CHILD SURVIVAL

Indicate block
numbers

Use this form to complete the information required in any block of a FIO/P, FIO/T or PA/PR. For FIO/C, furnish the item number, quantity, description/specifications, including catalog stock number and price when available.

Attachment I

STATEMENT OF WORK

A. OBJECTIVE:

The contractors will provide technical assistance to the Ministry of Health (MOH) technical training team responsible for training activities in the Immunization/ORT for Child Survival Project in order to:

- 1) determine to what extent MOH immunization and oral rehydration training given at the area level has reached and is being applied at the district, health post, and community levels;
- 2) make specific recommendations to the team regarding how to further extend the utilization of area training at the district, health post, and community levels; and
- 3) make specific recommendations to the team as to how training at the district, health post, and community levels can be improved.

B. SCOPE OF WORK:

Working closely with the MOH Child Survival training team, the contractors will carry out the following tasks:

- 1) observe area-level refresher courses and immunization and oral rehydration training at the district, health post, and community levels;

CONTINUATION SHEET	UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY AGENCY FOR INTERNATIONAL DEVELOPMENT	<input type="checkbox"/> Worksheet <input checked="" type="checkbox"/> Invoice	PAGE 5 OF 8 PAGES
	<input type="checkbox"/> M/O/C	1. Cooperating Country Guatemala	
	<input type="checkbox"/> M/O/P	2a. PIO Number 520-0339-3-60167	2b. Amendment <input type="checkbox"/> Original OR No. _____
	<input checked="" type="checkbox"/> M/O/T	3. Project Number and Title 520-0339 IMMUNIZATION AND ORAL REHYDRATION THERAPY SERVICES FOR CHILD SURVIVAL	
<input type="checkbox"/> PA/PR			

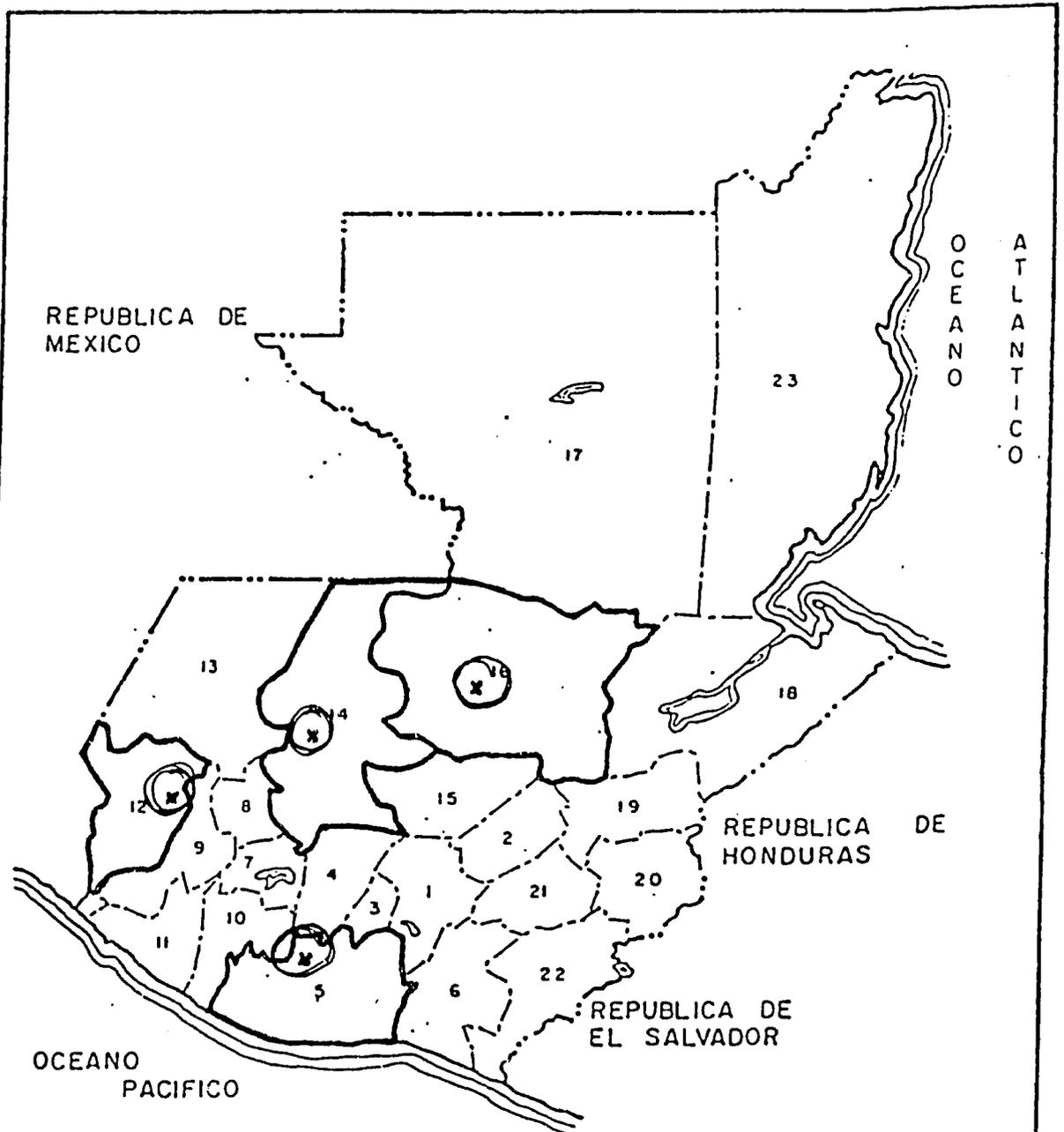
Indicate block numbers

Use this form to complete the information required in any block of a M/O/P, M/O/T or PA/PR. For M/O/C, furnish the item number, quantity, description/specifications, including catalog stock number and price when available.

- 2) improve and refine existing MOH pre- and post-tests, and design new pre- and post-tests, for the evaluation of MOH Child Survival training and interventions;
- 3) identify 3-4 communities with health promoters with recent immunization and ORT training, observe their work, determine the effectiveness of same, and make specific recommendations for improvement;
- 4) determine the perceptions of mothers in the above communities concerning immunizations and oral rehydration and investigate what the mothers think about the role and effectiveness of the health promoter;
- 5) observe on-going immunization and ORT health promoter training, evaluate the training using existing pre- and post-tests, and adapt pre- and post-tests for evaluation of future promoter training;
- 6) make recommendations for improvement of health promoter training;
- 7) identify problems encountered at the community level by health promoters and traditional birth attendants (such as interaction with community members, logistical support, and supervision needs) and make recommendations for dealing with the problems identified;
- 8) work with the MOH training team in the adapting and refining of channeling, immunization, and ORT training materials for community health promoters;
- 9) train the MOH training team in the use and application of all new tests and training materials developed by contractors;
- 10) investigate the feasibility of organizing a local team of anthropologists and sociologists for the on-going collection and analysis of data concerning acceptance/rejection of immunizations and oral rehydration therapy by the various Guatemalan linguistic and cultural groups;

APPENDIX I.b.:

LOCATION OF THE FOUR HEALTH DISTRICTS
INCLUDED IN THE STUDY SAMPLE



DEPARTAMENTOS:

- | | |
|-------------------|-------------------|
| 1. GUATEMALA | 13. HUEHUETEMANGO |
| 2. PROGRESO | 14. QUICHE |
| 3. SACATEPECQUEZ | 15. BAJA VERAPAZ |
| 4. CHIMALTENANGO | 16. ALTA VERAPAZ |
| 5. ESCUINTLA | 17. PETEN |
| 6. SANTA ROSA | 18. IZABAL |
| 7. SOLOLA | 19. ZACAPA |
| 8. TOTONICAPAN | 20. CHIQUIMULA |
| 9. QUEZALTENANGO | 21. JALAPA |
| 10. SUCHITEPEQUEZ | 22. JUTIAPA |
| 11. RETALMULEU | 23. BELICE |
| 12. SAN MARCOS | |

REPUBLICA DE
GUATEMALA

C. Calendar of Activities: Field Investigation

SAN LORENZO, SAN MARCOS (August 21-28 and 31, 1988):

Sunday, August 21: departure from Guatemala City.
Monday, August 22: initiation of field study in Santa Rosa
and El Porvenir Talquichó.
Sunday, August 28: conclusion of field study.
Wednes, August 31: debriefing meeting with area/district
personnel.

SAN PEDRO CARCHA, ALTA VERAPAZ (August 21-29, 1988):

Sunday, August 21: departure from Guatemala City.
Monday, August 22: initiation of field study in Esperanza
Chilatz and Santo Domingo Secaj.
Sunday, August 28: conclusion of field study.
Monday, August 29: debriefing meeting with area/district
personnel.

SACAPULAS, EL QUICHE (August 22-30, 1988):

Monday, August 22: departure from Guatemala City.
Tuesday August 23: initiation of field study in Pasaúl
Central and Río Blanco.
Monday, August 29: conclusion of field study.
Tuesday August 30: debriefing meeting with area/district
personnel.

SANTA LUCIA COTZUMALGUAPA, ESCUINTLA (September 6-14, 1988)

Tuesday, Sept. 6: departure from Guatemala City.
Wednes., Sept. 7: initiation of field study in Belice and
Las Cruces Esfuerzo de Cerezo.
Tuesday, Sept. 13: conclusion of field study.
Wednes., Sept. 14: debriefing meeting with area/district
personnel.

D. List of Field Investigators by Health District and Study Community

SACAPULAS, EL QUICHE

1. Pasaúl Central:

- a. MOH Central-Level Personnel, Guatemala City:
Dr. Noé Orellana, Department of Maternal-Child Health
(team leader)
- b. MOH District-Level Personnel, Sacapulas:
Carlos Mendoza, Rural Health Technician

2. Río Blanco:

- a. Local PRITECH Consultant, Guatemala City:
Lydia de León, Nutritionist (team leader)
- b. MOH District-Level Personnel, Sacapulas:
Edwin Charles, Environmental Sanitation Inspector

SAN LORENZO, SAN MARCOS

1. Santa Rosa:

- a. MOH Central-Level Personnel, Guatemala City:
Dr. Osmin Reina Enríquez, Team Leader
- b. MOH Area-Level Personnel, San Marcos:
Guillermo López y López, Training Technician
- c. MOH District-Level Personnel, San Lorenzo:
Elba Elizabeth de León Calderón, Rural Health Technician
Mauricio Velásquez Vicente, Environmental Sanitation Inspector
- d. MOH Health-Post-Level Personnel, Santa Rosa:
Carlos Efraín Mazariegos, Auxiliary Nurse

2. El Porvenir Talquichó:

- a. MOH Central-Level Personnel, Guatemala City:
Dr. Osmin Reina Enriquez, Team Leader
- b. MOH Area-Level Personnel, San Marcos:
Mario Rodolfo Paiz López, Environmental Sanitation
Inspector
Mariana Francisco Xuncax, Graduate Nurse
- c. MOH District-Level Personnel, San Lorenzo:
Melbi Ruth Orozco Fuentes, Graduate Nurse

SAN PEDRO CARCHA, ALTA VERAPAZ

1. Esperanza Chilatz:

- a. Local PRITECH Consultant, Guatemala City:
Dr. Walter Randolph Adams, Anthropologist (team leader)
- b. MOH District-Level Personnel, San Pedro Carchá:
Dr. José A. Hernández, Physician/District Director
Victor Manuel Zavala Bueschel, Environmental Sanitation
Inspector

2. Santo Domingo Secaj:

- a. MOH Central-Level Personnel, Guatemala City:
Esvin Rolando Lémus Pineda, Rural Health Technician,
Department of Investigation, Division of Human
Resources (team leader)
- b. MOH Area-Level Personnel, Cobán:
Carlos Rolando Barrientos, Rural Health Technician
- c. MOH District-Level Personnel, San Pedro Carchá:
Ciro Rolando Moinedo, Rural Health Technician

SANTA LUCIA COTZUMALGUAPA, ESCUINTLA

1. Belice, Escuintla:

- a. Local PRITECH Consultant, Guatemala City:
Lydia de León, Nutritionist (team leader)
- b. MOH Central-Level Personnel, Guatemala City:
Ricardo Vallardares, Department of Investigation,
Division of Human Resources
- c. MOH District-Level Personnel, Santa Lucía Cotzumalguapa:
Julio Enrique Villeda, Environmental Sanitation Inspector

2. Las Cruces Esfuerzo de Cerezo, Siquinalá:

- a. MOH Central-Level Personnel, Guatemala City:
Esvin Rolando Lémus Pineda, Rural Health Technician,
Department of Investigation, Division of Human
Resources (team leader)
Rosaura Sanabria, Rural Health Technician, Department of
Community Health, Division of Human Resources
- b. MOH District-Level Personnel, Santa Lucía Cotzumalguapa:
Carlos F. Maldonado, Rural Health Technician

E. Field Study Guides

(translated from the original Spanish versions)

GENERAL/DIAGNOSTIC INFORMATION ON STUDY COMMUNITIES

1. Names and titles of personnel who participate in the study at the:
 - A. health-area level;
 - B. health-district level;
 - C. community level.

2. Maps:
 - A. of the study community (if available);
 - B. locating the community within the municipality.

3. General data on the study community (or, if unavailable, for the municipality):
 - A. Population/number of families:
 - * total;
 - * by age group;
 - * by gender;
 - * by ethnic group.

 - B. Morbidity and mortality rates (specify source, year and if community-specific or otherwise; include comparative data by year if available):
 - * general mortality;
 - * maternal mortality;
 - * infant mortality (< 1 year);
 - * child mortality (1-5 years);
 - * top ten causes of:
 - infant morbidity;
 - infant mortality;
 - maternal mortality.
 - * specific morbidity and mortality rates (< 1 year; 1-5 years) for:
 - diarrhea/dehydration;
 - vaccination-preventable disease.
 - * % vaccination coverage by vaccine applied:
 - < 1 year of age;
 - 1-5 years of age;
 - pregnant women (tetanus toxoid).

C. Physical description of study community:

- * topography;
- * territorial extension;
- * climate (including impact on agricultural production--drought, etc. in the recent past);
- * principal crops;
- * accessibility:
 - number/type of access routes (paved, dirt, etc.);
 - road conditions during rainy and dry seasons;
 - distance from the municipal, departmental and national capitals;
 - public/private transportation services.

D. Socio-economic description:

- * economy/sources of work (local industry, etc.):
 - principal;
 - additional sources of income;
 - average per capita income.
- * marketing system;
- * land tenure;
- * seasonal migration patterns (where to? for how long?);
- * housing:
 - construction materials for roof, walls and floor;
 - lighting and ventilation.
- * average educational level:
 - by gender and ethnic group;
 - local schools (specify type and grades included).
- * % illiteracy by gender and ethnic group;
- * local language(s):
 - majority;
 - minority;
 - % bilingualism.
- * religions (specify sects):
 - majority;
 - minority;
 - relations between them;
 - impact on health.
- * communications (telephone, telegraph, mail service);
- * brief cultural/historical notes on the community, including any important events in the past few years.

E. Health and sanitation services:

- * nearest hospital, pharmacy, health center or post (indicate distances, and include governmental/non-governmental and religious services);
- * number, years of experience and principal activities of:
 - Ministry of Health rural health promoters;
 - health promoters from other institutions;
 - trained and empirical midwives;

- other community volunteers (specify);
- empirical medicine vendors, traditional healers ("curanderos"), "witch doctors" ("brujos"), masseurs ("sobadores"), others;
- Ministry of Health personnel at the health center/post level.
- * primary source(s) of water:
 - location within community/accessibility;
 - potable water services (% of the population served).
- * latrines (% of population served);
- * principal means of garbage disposal;
- * sewage management (% of population served, if any).

F. Other development services/institutions (specify years of experience in the community and principal activities):

- * governmental institutions (specify);
- * non-governmental/religious institutions (specify).

4. Felt needs of the community.

GENERAL INFORMATION ON RURAL HEALTH PROMOTORS

1. Personal Data:

- A. gender;
- B. age;
- C. marital status;
- D. number of children.

2. History as Rural Health Promotor:

- A. how selected; by whom; selection criteria utilized;
- B. time in service;
- C. training/retraining received (emphasis, etc.);
- D. motive(s) for being/continuing to be a rural health promotor;
- E. reasons why he/she might discontinue role as rural health promotor;
- F. occupation prior to becoming rural health promotor;
- G. does he/she aspire to some other position within the health field? which one(s)? what are the obstacles?
- H. ex-rural health promotors (inactive):

- * for what reason(s) did he/she quit?
- * does he/she consider returning as a promotor? under what conditions?

3. Comparison with Other Community Members:

- A. educational level;
- B. religious affiliation (specify sect);
- C. political affiliation;
- D. economic situation (size/quality of land, house, animals, electrical appliances, vehicles, etc.);
- E. dress (traditional indigenous, etc.);
- F. principal language; bilingual?
- G. location of home (centric, accessibility, etc.);
- H. sanitary conditions in the home;
- I. occupation/principal source of income;
- J. leadership position;
- K. social position.

ROLE OF THE RURAL HEALTH PROMOTOR

1. Responsibilities/expectations of the rural health promotor towards:

- A. his/her community;
- B. Ministry of Health personnel (specify discipline);
- C. from the point of view of:
 - * the promotor him/herself;
 - * MOH personnel (specify discipline);
 - * the community.

2. Responsibilities/expectations of MOH personnel towards:

- A. the promotor;
- B. the community;
- C. from the point of view of:
 - * the promotor;
 - * MOH personnel themselves (specify discipline);
 - * the community.

3. Responsibilities/expectations of the community towards:

- A. the promotor;
- B. MOH personnel (specify discipline);
- C. from the point of view of:
 - * the promotor;
 - * MOH personnel (specify discipline);
 - * the community itself.

4. Criteria utilized in the selection of the promotor from the point of view of:
 - A. the promotor him/herself;
 - B. MOH personnel (specify discipline);
 - C. the community.

5. What has been the level of effectiveness of the promotor from the point of view of:
 - A. the promotor him/herself?
 - B. MOH personnel (in the promotor's absence)?
 - C. the community (in the promotor's absence)?
 - D. how do each of these groups define "effectiveness"? what criteria do they use?
 - E. limitations/necessities/problems?
 - F. how to improve (solutions/suggestions)?
6. How would you characterize the relationships (interaction, behavior, acceptance, hierarchy vs. egalitarianism, respect, assistance) between the promotor and:
 - A. his/her community?
 - B. his/her colleagues/other promotors?
 - C. MOH personnel (specify discipline)?
 - D. other community leaders, including midwives, other promotors and volunteers in health, agriculture, etc.?
 - E. local authorities, representatives of governmental/non-governmental agencies, religious institutions, commissioned military personnel, etc.?
 - F. problems identified (personal conflicts, jealousies, etc.)?
 - G. how to improve (solutions/suggestions)?

7. How well does the patient referral/counter-referral system function?
 - A. patients referred/counter-referred to the promotor by the health service;
 - B. patients referred/counter-referred to the health service by the promotor;
 - C. patients referred to the promotor by other persons;
 - D. are formal procedures established and respected (e.g. referral/counter-referral coupons, referral criteria, etc.)?
 - E. acceptance/treatment of the referred patient;
 - F. "feedback" to the promotor from MOH personnel;
 - G. limitations/necessities/problems;
 - H. how to improve (solutions/suggestions).

SUPPORT FOR THE RURAL HEALTH PROMOTOR

1. Training/Retraining:

A. Schedule/logistics:

- * how often are new groups of promotors trained?
- * how often are retraining courses offered?
- * how often (and at what level of the MOH) are meetings held between district promotors?
- * what is the schedule/length of the training/retraining sessions?
- * are training facilities adequate (classroom, lighting, ventilation, etc.)?
- * limitations/necessities/problems?
- * how to improve (solutions/suggestions)?

B. Content:

- * emphasis/principal topics of training;
- * orientation of training sessions (promotion, preventive vs. curative);
- * consistency with past/current MOH norms and priorities;
- * number of topics presented; relevancy; priority (from the point of view of the community/MSPyAS);
- * clarity and quality of training methodology;
- * which training manuals/other materials are used?
 - current vs. past versions?
 - does each promotor receive his/her own copy to keep?
- * what is the balance between theory and practice?
- * limitations/necessities/problems?
- * how to improve (solutions/suggestions)?
 - what should be changed? emphasized? added? eliminated?

C. Financial support/other incentives:

- * what kind of financial support/other incentives exist (per diem, transportation, meals, etc.)?
- * limitations/necessities/problems?
- * how to improve (solutions/suggestions)?

2. Supervision/Follow-up/Support (post-training):

A. Purpose (control, technical support, training, etc.);

B. Where (in the promotors' communities, health center/post, etc.)?

- C. How often (when was the last time the promotor was visited by health-district personnel? area-level personnel?)?
- D. Who provides these support services?
- E. At whose initiative are these services provided?
- F. Content/activities carried out?
- G. Is there any kind of standardization of frequency, purpose, content, etc.?
- H. Does there exist any kind of system for maintaining promotors up-to-date with norms and procedures? how does it work? is it adequate/functional?
- I. Limitations/necessities/problems?
- J. How to improve (solution/suggestions)?

3. Resources/Support (post-training):

A. Human/technical:

- * what does it consist of (e.g. moral support, scholarships, other types of technical support)?
- * how often (and at what level within the health system) are meetings held between district promotors?
- * limitations/necessities/problems?
- * how to improve (solutions/suggestions)?

B. Material/logistical:

- * what does it consist of (e.g. quantity/quality of didactic materials, manuals or other technical/reference materials, first-aid kits, medicines, etc.)?
- * limitations/necessities/problems?
- * how to improve (solutions/suggestions)?

C. Financial/other incentives:

- * what does it consist of (e.g. per diem, transportation, meals, stipend or salary, etc.)?
- * limitations/necessities/problems?
- * how to improve (solutions/suggestions)?

DISCUSSION GUIDE: ORT

INCLUDE THE FOLLOWING INFORMATION FOR EACH INTERVIEW OR FOCUS GROUP:

- * Name of the community;
- * Health district/area;
- * Type of group or individual interviewed;
- * Number of participants;
- * Name of the interviewer(s);
- * Language in which the activity was conducted/use of translator;
- * Date of the activity.

1. How do you know when your children have diarrhea? What happens to them?
2. Why do you think a person gets diarrhea?
3. What do you give your children when they get diarrhea?
4. When your infants get diarrhea, do you continue to breast-feed them?

Yes > Do you breastfeed them: the same as usual?
more often than usual? or,
less than usual?
Why?

No > Why not?
5. Do you continue to give your children liquids when they have diarrhea?

Yes > Which liquids do you give them?

Do you give them these liquids: the same as usual?
more often than
usual?
less than usual?
Why?

Is there some liquid which is NOT good for a child
when he has diarrhea? Which one/ones?

No > Why not?

6. Do you continue feeding your children when they have diarrhea?

Yes > Which foods do you give them?

Do you give them these foods: the same as usual?
more often than usual?
less than usual?
Why?

Is there some food which is NOT good for a child when he has diarrhea? Which one/ones?

No > Why not?

7. When your child no longer has diarrhea, do you feed him:

the same as usual?
more often than usual?
less than usual?
Why?

8. Do you think diarrhea can be dangerous? Why?

9. How do you decide if your children need some special medicine for diarrhea? What do they have, or what happens to them?

10. Who do you go to when your children need something special for diarrhea?

11. Let's suppose your small child has diarrhea. You see he's quite active. His mouth and tongue are moist as always. His eyes look normal, and when he cries he has tears. Also, his fontanelle is normal, or in other words, it is not sunken in.

What would you give the child in this case?

12. Now, let's suppose that your child has had diarrhea for two days. He's irritable and cries without tears. His mouth and tongue are dry, and he's very thirsty.

What would you give the child in this case? Would it be something different from in the first case?

13. Now let's suppose your child has had diarrhea for several days. He dirties his diapers all the time. He can no longer breastfeed, and it's real hard to wake him up. Also, he didn't urinate all night long, and his little eyes are very dry and sunken in.

What would you do in this case?

14. Do you know what "dehydration" is? Can you explain it to me?
15. How do you know if your children are dehydrated, or in other words, that they've lost a lot of liquid from their bodies from the diarrhea? What happens to them?
16. What do you think a mother can do to keep her children from becoming dehydrated when they have diarrhea?
17. Do you know what oral rehydration solution ("suero oral") is? or super solution or homemade solution ("suero casero")?
- Can you explain to me what you put in it and how to make it?
18. When should you start giving oral rehydration solution ("suero") to a child with diarrhea?
19. How much solution should the child drink?
20. How often should you give the solution to the child?
21. Up until what point should you give the child solution? How do you know when he no longer needs it?
22. What do you think a mother can do to keep her children from getting diarrhea?

DISCUSSION GUIDE: EPI

INCLUDE THE FOLLOWING INFORMATION FOR EACH INTERVIEW OR FOCUS GROUP:

- * Name of the community;
- * Health district/area;
- * Type of group or individual interviewed;
- * Number of participants;
- * Name of the interviewer(s);
- * Language in which the activity was conducted/use of translator;
- * Date of the activity.

1. Do you think it is good to vaccinate your children?

Yes > Why? What is the purpose of vaccines?

No > Why not?

TUBERCULOSIS

2. Can you mention some signs of tuberculosis?

3. Can this illness be prevented by vaccinating your children?

4. Do you know the name of the vaccine that protects a child against tuberculosis?

5. At what age should you vaccinate a child against tuberculosis for the first time?

6. How many times should you vaccinate a child against tuberculosis?

7. Do you think your children can have some kind of reaction to this vaccine?

What kind of reaction?

Do you think this is normal after vaccinating a child?

What should you do when a child has a reaction to this vaccine?

What would you do, or what would you give the child to make him more comfortable?

What would you do if the child is not better after a couple of days?

8. Can you bathe children before vaccinating them against tuberculosis?

No > Why not?

9. Can you bathe children after vaccinating them against tuberculosis?

No > Why not?

MEASLES

10. Can you mention some signs of measles?

11. Can this illness be prevented by vaccinating your children?

12. Do you know the name of the vaccine that protects a child against measles?

13. At what age should you vaccinate a child against measles for the first time?

14. How many times should you vaccinate a child against measles?

15. Do you think your children can have some kind of reaction to this vaccine?

What kind of reaction?

Do you think this is normal after vaccinating a child?

What should you do when a child has a reaction to this vaccine?

What would you do, or what would you give the child to make him more comfortable?

What would you do if the child is not better after a couple of days?

16. Can you bathe children before vaccinating them against measles?

No > Why not?

17. Can you bathe children after vaccinating them against measles?

No > Why not?

POLIO

18. Can you mention some signs of polio (paralysis)?

19. Can this illness be prevented by vaccinating your children?

20. Do you know the name of the vaccine that protects a child against polio?
21. At what age should you vaccinate a child against polio for the first time?
22. How many times should you vaccinate a child against polio?
23. Can you feed or breastfeed a child 15 minutes after vaccinating him against polio?
24. Do you think your children can have some kind of reaction to this vaccine?

What kind of reaction?

Do you think this is normal after vaccinating a child?

What should you do when a child has a reaction to this vaccine?

What would you do, or what would you give the child to make him more comfortable?

What would you do if the child is not better after a couple of days?

25. Can you bathe children before vaccinating them against polio?

No > Why not?

26. Can you bathe children after vaccinating them against polio?

No > Why not?

TETANUS

27. Can you mention some signs of tetanus (the seven-day illness)?
28. Can this illness be prevented by vaccinating your children?
29. Do you know the name of the vaccine that protects a child against tetanus (the seven-day illness)?
30. At what age should you vaccinate a child against tetanus for the first time?
31. How many times should you vaccinate a child against tetanus?

32. Do you think your children can have some kind of reaction to this vaccine?

What kind of reaction?

Do you think this is normal after vaccinating a child?

What should you do when a child has a reaction to this vaccine?

What would you do, or what would you give the child to make him more comfortable?

What would you do if the child is not better after a couple of days?

33. Can you bathe children before vaccinating them against tetanus?

No > Why not?

34. Can you bathe children after vaccinating them against tetanus?

No > Why not?

WHOOPING COUGH

35. Can you mention some signs of whooping cough?

36. Can this illness be prevented by vaccinating your children?

37. Do you know the name of the vaccine that protects a child against whooping cough?

38. At what age should you vaccinate a child against whooping cough for the first time?

39. How many times should you vaccinate a child against whooping cough?

40. Do you think your children can have some kind of reaction to this vaccine?

What kind of reaction?

Do you think this is normal after vaccinating a child?

What should you do when a child has a reaction to this vaccine?

What would you do, or what would you give the child to make him more comfortable?

What would you do if the child is not better after a couple of days?

41. Can you bathe children before vaccinating them against whooping cough?

No > Why not?

42. Can you bathe children after vaccinating them against whooping cough?

No > Why not?

DIPHTHERIA

43. Can you mention some signs of diphtheria?
44. Can this illness be prevented by vaccinating your children?
45. Do you know the name of the vaccine that protects a child against diphtheria?
46. At what age should you vaccinate a child against diphtheria for the first time?
47. How many times should you vaccinate a child against diphtheria?
48. Do you think your children can have some kind of reaction to this vaccine?

What kind of reaction?

Do you think this is normal after vaccinating a child?

What should you do when a child has a reaction to this vaccine?

What would you do, or what would you give the child to make him more comfortable?

What would you do if the child is not better after a couple of days?

49. Can you bathe children before vaccinating them against diphtheria?

No > Why not?

50. Can you bathe children after vaccinating them against diphtheria?

No > Why not?

TETANUS TOXOID

51. Do you think women should receive a vaccine when they are pregnant? Which one?
- a) What is this vaccine for? What disease does it protect against?
- b) How many times should a woman receive this vaccine during her pregnancy?
- c) At how many months of pregnancy should the woman be vaccinated?

F. Comparison of the Two Study Samples of Promoters by Independent Variables

		ORT TESTS		EPI TESTS	
		#	%	#	%
* health district	Sacapulas, El Quiché	22	24	22	23
	San Lorenzo, San Marcos	20	22	20	21
	San Pedro Carchá, Alta Verapaz	36	40	39	41
	Santa Lucía Cotz., Escuintla	12	13	13	14
	Total Sample Size:	90	99	94	99
* gender	Male:	62	69	64	68
	Female:	28	31	30	32
* age	< 18 yrs. ²⁹	7	8	4	4
	18-25 yrs.	21	23	32	34
	26-35 yrs.	38	42	35	37
	36-45 yrs.	15	17	14	15
	> 45 yrs.	6	7	6	7
	No data:	3	3	3	3
	Range:	14-59 years		15-59 years	
Average:	30 years		30 years		
* marital status	Married:	55	61	55	59
	Common Law:	5	6	5	5
	Widowed:	0	0	1	1
	Single:	27	30	33	35
	No data:	3	3	0	0

²⁹ technically ineligible to be rural health promoters based on current MOH norms.

		ORT TESTS		EPI TESTS	
		#	%	#	%
* # of children	0:	29	32	31	33
	1 - 3:	18	20	23	24
	4 - 5:	21	23	19	20
	6 - 7:	13	14	13	14
	> 7:	6	7	7	7
	No data:	3	3	1	1
	Range:	0-10 child.		0-10 child.	
* occupation	Agriculture:	52	58	52	55
	Merchant:	3	3	3	3
	Laborer:	0	0	3	3
	Housewife:	26	29	26	28
	Midwife:	1	1	1	1
	Other:	1	1	3	3
	No data:	7	8	6	6
* years of service	< 1 yr.	7	8	13	14
	0-5 yrs.	45	50	57	61
	6-12 yrs.	22	24	23	24
	> 12 yrs.	13	14	10	11
	No data:	10	11	4	4
		Range:	1 m-16 yrs.		1 m-16 yrs.
* last training	≤ 1 mos.	43	48	45	48
	2-12 mos.	23	26	31	33
	1- 2 yrs.	2	2	3	3
	≥ 3 yrs.	2	2	3	3
	No data:	20	22	12	13

G. Cuestionario para Promotores de Salud -- Diarrea y Deshidratación

DATOS GENERALES: Favor llenar los siguientes espacios.

Nombre: _____

Comunidad: _____

Distrito de Salud: _____

Area de Salud: _____

Sexo: _____ Edad: _____ años cumplidos

Estado Civil: _____ Número de hijos: _____

Ocupación: _____

Religión: _____

Hace cuánto trabaja usted como Promotor de Salud? _____

Cuándo recibió la última capacitación? _____

INSTRUCCIONES:

Este cuestionario consiste de dos tipos de preguntas:

1. Para algunas preguntas, usted tiene que decidir si las respuestas dadas son correctas o incorrectas.

En algunos casos, puede haber más de una respuesta correcta. Así que, subraye todas las respuestas que usted crea correctas.

2. Para otras preguntas, usted tiene que escribir su respuesta en los espacios indicados.

3. Lea cada pregunta con cuidado.

4. Si no sabe la respuesta a alguna pregunta, déjela en blanco.

Nombre: _____

DIARREA Y DESHIDRATACION

A. PREGUNTAS GENERALES SOBRE LA DIARREA (LOS ASIENTOS):

1. Porqué piensa usted que los asientos pueden ser peligrosos?
(Subraye la o las respuestas correctas.)

- a) Los asientos son peligrosos porque pueden causar desnutrición.
- b) Los asientos son peligrosos porque pueden causar deshidratación (hacen que se seque el cuerpo).
- c) Los asientos son peligrosos porque pueden causar la muerte.
- d) Los asientos NO son peligrosos, ya que son comunes y corrientes tanto entre los niños pequeños como entre las personas grandes.

2. Cuáles de las siguientes situaciones pueden causar asientos?
(Subraye la o las respuestas correctas.)

- a) La madre no se lava las manos antes de preparar la comida de su hijo.
- b) El niño gateo por el suelo, junto con los animales de la casa.
- c) La madre no tapa la comida, y las cucarachas y moscas andan por ella.
- d) Le pegan al niño mal de ojo.
- e) La madre prepara la comida del niño con agua sucia.
- f) Al niño le están saliendo los dientes.
- g) La madre no lava las frutas y verduras que come el niño.
- h) El niño se mete los dedos sucios en la boca.

3. Qué preguntas debe hacerle a una madre cuando su hijo tiene asientos? (Subraye la o las respuestas correctas.)
- a) Cuántos asientos hace el niño al día?
 - b) Está vomitando el niño?
 - c) Está tomando el niño más líquidos que de costumbre?
 - d) Está mojando los pañales menos que de costumbre?
4. Cuáles de las siguientes son señas de la deshidratación cuando un niño tiene asientos? (Subraye la o las respuestas correctas.)
- a) El niño tiene más sed de lo normal.
 - b) El niño orina poca cantidad y oscura.
 - c) El niño está irritable o indispuesto.
 - d) A los niños pequeños, se les hund la mollera.
 - e) El niño llora sin lágrimas.
 - f) El niño tiene los ojos hundidos.
 - g) El niño tiene la boca y lengua secas.
 - h) Cuando se hace un pliegue en la piel del niño, la piel recupera su forma normal con lentitud.

B. TRATAMIENTO DE LOS ASIENTOS:

5. Cuál de los siguientes consejos debe dar a una madre sobre la lactancia cuando su hijo tiene asientos? (Marque una sola respuesta.)
- a) Debe darle de mamar a su hijo igual que siempre.
 - b) Debe darle de mamar más que cuando el niño no tiene asientos.
 - c) Debe darle de mamar a su hijo menos que de costumbre.
 - d) Debe dejar de darle pecho al niño hasta que se le quiten los asientos.
6. Cómo debe una madre darle líquidos a su hijo cuando tiene asientos? (Marque una sola respuesta.)
- a) Debe darle la misma cantidad de líquidos que de costumbre.
 - b) Debe darle más líquidos que cuando no tiene asientos.
 - c) Debe darle menos líquidos que de costumbre.
 - d) Debe dejar de darle líquidos al niño hasta que se le quiten los asientos.
7. Cuál de los siguientes consejos debe darle a una madre sobre la alimentación de su hijo cuando tiene asientos. (Marque una sola respuesta.)
- a) Debe darle de comer a su hijo igual que siempre.
 - b) Debe darle comida más pequeñas pero más seguidas.
 - c) Debe darle menos comida que de costumbre.
 - d) Debe dejar de darle de comer al niño hasta que se le quiten los asientos.

8. Cuando el niño ya no tiene asientos, cómo debe la mamá darle de comer a su hijo? (Marque una sola respuesta.)
- a) Debe darle de comer en las cantidades acostumbradas.
 - b) Debe darle una comida extra durante 2 semanas.
 - c) Debe darle de comer en menor cantidad que de costumbre para dejar descansar el estómago.
 - d) Debe darle solamente sopitas y atoles.

Cuando Carlitos, el hijo de Marta tiene 9 meses, se enferma de los asientos. En la visita domiciliaria que usted hace a la casa de Marta, encuentra que Carlitos se ve bien activo. Su boca y lengua están húmedas como siempre. Sus ojos se ven normales, y cuando llora tiene lágrimas. Además, la mollera está normal, o sea, no está hundida.

- 9.Cuál de los siguientes es el mejor consejo que usted puede dar a Marta en este caso? (Marque una sola respuesta.)
- a) Marta debe darle a Carlitos más líquidos que de costumbre.
 - b) Marta debe dejar de darle pecho a Carlitos hasta que le pasen los asientos.
 - c) Marta debe darle a Carlitos suero oral o suero casero.
 - d) Marta debe llevar a Carlitos al servicio de salud lo más pronto posible.
 - e) Marta debe comprar medicinas para quitarle los asientos.
 - f) Marta debe ponerle una inyección de vitamina B.
 - g) Marta debe darle antibióticos (penicilina).
 - h) Marta no debe hacer nada, ya que los asientos son muy comunes en niños pequeños y a veces se quitan solos.

Usted visita otra casa y encuentra que el niño pequeño ha tenido asientos desde hace 2 días. El niño está irritable y llora sin lágrimas. Tiene la boquita y lengua secas, y tiene mucha sed.

- 10.Cuál de los siguientes es el mejor consejo que usted puede dar a la mamá en este caso? (Marque una sola respuesta.)
- a) La mamá debe darle a su hijo más líquidos que de costumbre.
 - b) La mamá debe dejar de darle pecho a su hijo hasta que le pasen los asientos.
 - c) La mamá debe darle a su hijo suero oral o suero casero.
 - d) La mamá debe llevar a su hijo al servicio de salud lo más pronto posible.
 - e) La mamá debe comprar medicinas para quitarle los asientos.
 - f) La mamá debe ponerle una inyección de vitamina B.
 - g) La mamá debe darle antibióticos (penicilina).
 - h) La mamá no debe hacer nada, ya que los asientos son muy comunes en niños pequeños y a veces se quitan solos.

En otra casa, usted encuentra otro niño que ha tenido asientos desde hace varios días. Usted encuentra que el niño está ensuciando su pañal a cada rato. Ya no puede mamar, y cuesta mucho despertarlo. Además, no orinó en toda la noche, y tiene los ojitos muy secos y hundidos.

11. Cuál de los siguientes es el mejor consejo que usted puede dar a la mamá en este caso? (Marque una sola respuesta.)
- a) La mamá debe darle a su hijo más líquidos que de costumbre.
 - b) La mamá debe dejar de darle pecho a su hijo hasta que le pasen los asientos.
 - c) La mamá debe darle a su hijo suero oral o suero casero.
 - d) La mamá debe llevar a su hijo al servicio de salud lo más pronto posible.
 - e) La mamá debe comprar medicinas para quitarle los asientos.
 - f) La mamá debe ponerle una inyección de vitamina B.
 - g) La mamá debe darle antibióticos (penicilina).
 - h) La mamá no debe hacer nada, ya que los asientos son muy comunes en niños pequeños y a veces se quitan solos.
12. Cuándo debe una mamá llevar a su hijo al servicio de salud si tiene asientos? (Subraye la o las respuestas correctas.)
- a) Cuando el niño tiene vómitos muy seguidos.
 - b) Cuando el niño tiene moco o sangre en los asientos.
 - c) Cuando el niño tiene fuerte calentura.
 - d) Cuando el niño no puede o no quiere mamar o tomar líquidos.

C. PREPARACION Y USO DE SUERO ORAL O CASERO:

13. Escriba en los espacios indicados, qué cantidad de los siguientes ingredientes se debe usar para preparar un litro de SUERO CASERO:

Agua limpia: _____
Sal: _____
Azúcar: _____
Otro ingrediente: _____

14. Escriba en los espacios indicados, qué cantidad de los siguientes ingredientes se debe usar para preparar un litro de SUERO ORAL (que viene en sobrecitos):

Agua limpia: _____
Número de sobrecitos de suero oral: _____
Jugo de naranja: _____
Otro ingrediente: _____

15. Cuánto suero debe tomar un niño con asientos? (Marque una sola respuesta.)

- a) 1 taza cada 4 horas.
- b) 1 litro al día.
- c) 2 litros al día.
- d) Todo lo que el niño quiera.

16. Cada cuánto se debe dar suero a un niño con asientos? (Marque una sola respuesta.)

- a) Cada 5 minutos.
- b) Cada 1/2 hora.
- c) Cada hora.
- d) Cada vez que el niño lo pida.

D. PREVENCION DE LOS ASIENTOS Y LA DESHIDRATAACION:

17. Qué debe aconsejarle a una mamá que haga para ayudar que sus hijos no se enfermen tan seguido de asientos? (Subraye la o las respuestas correctas.)
- a) La mamá debe mantener la cas bien limpia, y los animales fuera de ella.
 - b) La mamá debe tener mucho cuidado en el aseo de toda la familia.
 - c) La mama debe mantener una buena higiene en la preparación de los alimentos.
 - d) La mamá debe mantener los trastos y la comida tapados.
18. Qué debe hacer una madre para evitar que su hijo se deshidrate cuando tiene asientos? (Subraye la o las respuestas correctas.)
- a) Debe darle al niño muchos líquidos desde que le empiezan los asientos.
 - b) Si el niño está mamando, debe seguir dándole de mamar.
 - c) Debe sobarle el estómago, y darle medicina para parar los asientos.
 - d) No debe darle de mamar al niño hasta que se le quiten los asientos.

H. Cuestionario para Promotores de Salud -- La Vacunación

DATOS GENERALES: Favor llenar los siguientes espacios.

Nombre: _____

Comunidad: _____

Distrito de Salud: _____

Area de Salud: _____

Sexo: _____ Edad: _____ años cumplidos

Estado Civil: _____ Número de hijos: _____

Ocupación: _____

Religión: _____

Hace cuánto trabaja usted como Promotor de Salud? _____

Cuándo recibió la última capacitación? _____

INSTRUCCIONES:

Este cuestionario consiste de dos tipos de preguntas:

1. Para algunas preguntas, usted tiene que decidir si las respuestas dadas son correctas o incorrectas.

En algunos casos, puede haber más de una respuesta correcta. Así que, subraye todas las respuestas que usted crea correctas.

2. Para otras preguntas, usted tiene que escribir su respuesta en los espacios indicados.
3. Lea cada pregunta con cuidado.
4. Si no sabe la respuesta a alguna pregunta, déjela en blanco.

Nombre: _____

LA VACUNACION

A. PREGUNTAS GENERALES SOBRE LA VACUNACION:

1. Cuáles de las siguientes tareas piensa usted que son responsabilidades de un promotor de salud? (Subraye la o las respuestas correctas.)
 - a) Promocionar y participar en actividades de vacunación en su comunidad.
 - b) Enseñar a su comunidad la importancia de las vacunas, y las enfermedades que se evitan.
 - c) Enseñar a su comunidad los peligros que corre un niño que no se vacuna.
 - d) Enseñar a su comunidad las edades en que se debe vacunar a los niños, y cuántas veces deben ponerse las vacunas.
 - e) Enseñar a su comunidad las reacciones que pueden causar las vacunas, y los cuidados que se debe dar al niño.
 - f) Llevar un registro de los niños y mujeres embarazadas vacunados y no vacunados en su comunidad.
 - g) Buscar a niños y mujeres embarazadas que no estén vacunados, visitarlos y referirlos al servicio de salud.
 - h) Reconocer las enfermedades que se pueden evitar con las vacunas, e informar cualquier caso al servicio de salud.

2. De cuáles de los siguientes factores depende el éxito de la vacunación en su comunidad? (Subraye la o las respuestas correctas.)
 - a) su cobertura (el número de niños y mujeres embarazadas que están vacunados).
 - b) el cuidado adecuado de las vacunas.
 - c) la participación de la comunidad.
 - d) la capacitación adecuada del personal que participa.

B. LAS ENFERMEDADES QUE SE PUEDEN EVITAR CON LAS VACUNAS:

6. Cuáles de las siguientes son señas de la tuberculosis?
(Subraye la o las respuestas correctas.)

- a) El paciente tiene tos desde hace mucho tiempo, y a veces al toser, escupe gargajos con sangre.
- b) El paciente tiene calentura, y suda mucho en las noches.
- c) El paciente no tiene hambre, y pierde mucho peso.
- d) El paciente se siente muy cansado, y no tiene ganas de trabajar o estudiar.

7. Cuáles de las siguientes son señas de la tos ferina?
(Subraye la o las respuestas correctas.)

- a) La enfermedad comienza con calentura, catarro, tos seca y malestar general.
- b) El paciente tose muchas veces seguidas.
- c) El paciente parece que se ahoga cuando está tosiendo.
- d) Cuando el paciente termina de toser, le sale un ruido como chilfildo o silbido.

8. Cuáles de las siguientes son señas del tétanos (mal de los 7 días)? (Subraye la o las respuestas correctas.)

- a) El paciente no puede mamar o comer porque no puede abrir la boca, ni puede tragar.
- b) La cara del paciente se pone estirada, y parece que se estuviera riendo o haciendo muecas.
- c) El cuerpo del paciente se pone rígido o duro, y en forma de arco.
- d) Los brazos o las piernas se ponen tiesos y dan ataques.

9. Cuáles de las siguientes son señas de la polio (parálisis)? (Subraye la o las respuestas correctas.)
- a) La enfermedad comienza con asientos, calentura, tos y malestar general.
 - b) El paciente siente dolor en la nuca, la espalda, las piernas o en los brazos.
 - c) El paciente no puede mover la cabeza, las piernas o los brazos.
 - d) Los brazos o las piernas del paciente se adelgazan y se tuercen quedando con parálisis.
10. Cuáles de las siguientes son señas del sarampión? (Subraye la o las respuestas correctas.)
- a) La enfermedad comienza con catarro, tos seca, fuerte calentura y malestar general.
 - b) El paciente tiene los ojos llorosos y rojos.
 - c) Después de 3 días de calentura, aparecen erupciones (ronchitas) en la cara, el cuello y detrás de las orejas.
 - d) Al paciente, se le riegan las erupciones en todo el cuerpo.

C. EL ESQUEMA DE VACUNACION:

Marta es una joven señora que vive en su comunidad y está esperando su primer hijo. Ella llega con usted y le pide que le aconseje acerca de las vacunas que debe ponerse durante su embarazo. Para proteger a su hijo contra el tétanos (mal de los 7 días), Marta debe ponerse la vacuna toxoide tetánico.

11. Escriba sus respuestas a las siguientes preguntas sobre esta vacuna durante el embarazo:

- a) A cuántos meses de embarazo debe Marta ponerse la primera vacuna contra el tétanos? a) _____
- b) Cuántas veces debe Marta ponerse esta vacuna durante su embarazo? b) _____
- c) A cuántos meses de embarazo debe Marta ponerse la última vacuna contra el tétanos? c) _____
- d) Entre las vacunas que Marta se pone, cuánto tiempo como MINIMO debe pasar? d) _____

Usted, como promotor de salud, debe aconsejarle a Marta durante su embarazo para que sepa la importancia de las vacunas para su hijo, y las edades en que debe vacunarle.

12. Cuántos meses debe tener un niño para que se le ponga por primera vez las siguientes vacunas? (Escriba sus respuestas en los espacios indicados.)

- a) BCG a) _____
- b) DPT (la Triple) b) _____
- c) Polio c) _____
- d) Sarampión d) _____

13. Cuántas veces debe ponerse las siguientes vacunas durante el primer año de vida para que un niño esté protegido? (Escriba sus respuestas en los espacios indicados.)

- | | |
|--------------------|----------|
| a) BCG | a) _____ |
| b) DPT (la Triple) | b) _____ |
| c) Polio | c) _____ |
| d) Sarampión | d) _____ |

14. Cuánto tiempo debe pasar entre las dosis que se ponen de las siguientes vacunas? (Escriba sus respuestas en los espacios indicados.)

- | | |
|--------------------|----------|
| a) BCG | a) _____ |
| b) DPT (la Triple) | b) _____ |
| c) Polio | c) _____ |
| d) Sarampión | d) _____ |

15. Cuándo NO se debe vacunar a un niño? (Subraye la o las respuestas correctas.)

- a) Cuando el niño está desnutrido.
- b) Cuando el niño tiene diarrea.
- c) Cuando el niño tiene catarro o gripe.
- d) Cuando el niño está gravemente enfermo con fuerte calentura.

D. OTROS MENSAJES EDUCATIVOS PARA LA MADRE:

16. Qué debe decir a las mamás sobre el baño y la vacunación de sus hijos? (Marque una sola respuesta.)
- a) Se puede bañar al niño tanto antes como después de ponerle la vacuna, sin que le haga daño.
 - b) Se puede bañar al niño solamente antes de ponerle la vacuna.
 - c) Se puede bañar al niño solamente después de ponerle la vacuna.
 - d) No se debe bañar al niño ni antes ni después, ya que el baño puede hacer que la vacuna pierda su fuerza.
17. Después de poner la vacuna contra la polio, cuánto tiempo debe esperar la mamá para dar de mamar o comer a su hijo, para evitar que escupa o vomite la vacuna? (Marque una sola respuesta.)
- a) La madre debe esperar 5 minutos para dar de mamar o comer a su hijo.
 - b) La madre debe esperar 15 minutos para dar de mamar o comer a su hijo.
 - c) La madre debe esperar 2 horas para dar de mamar o comer a su hijo.
 - d) La madre no tiene que esperar para dar de mamar o comer a su hijo.
18. Cuáles de las siguientes son reacciones que un niño puede tener a las vacunas? (Subraye la o las respuestas correctas.)
- a) Calentura leve.
 - b) Sentir dolor en el lugar en donde se le puso la vacuna.
 - c) Estar un poco decaído, con poco apetito.
 - d) Estar inquieto, irritable o llorón.

19. Si un niño tiene molestias después de ponerle una vacuna, qué debe aconsejarle a la mamá que le dé al niño para que se alivie? (Marque una sola respuesta.)
- a) 1/2 aspirina para adultos cada 4 horas.
 - b) 1 aspirinita (o Bebetina o Mejoralito) cada 4 horas.
 - c) 1 aspirinita (o Bebetina o Mejoralito) cada 6-8 horas.
 - d) 2 aspirinitas (o Bebetinas o Mejoralitos) cada 6-8 horas.
20. Cuándo debe decir a una mamá que es urgente llevar a su hijo al servicio de salud? (Subraye la o las respuestas correctas.)
- a) Cuando el niño tiene calentura más de 3 días.
 - b) Cuando el niño está vomitando, o no quiere mamar, comer, o beber.
 - c) Cuando al niño le cuesta respirar.
 - d) Cuando al niño le dan convulsiones (ataques).

I. General Health and Demographic Data on Study Communities

(Summarized from Field Reports)

SACAPULAS, EL QUICHE

1. Pasaúl Central:

- A. Total Population (1988 estimate): 555 inhabitants.
- B. Housing Conditions: there are a total of 80 dwellings in the community, constructed primarily of adobe or mud-and-wattle with tile or thatched roofs and dirt floors. Light-ing and ventilation are deficient.
- C. Sanitation Conditions: only 10% of the population has latrines, and even they are inadequately used and maintained; the remaining population has no sanitary means of human-waste disposal. The majority uses its garbage as compost. There is no drainage system.
- D. Principal Sources of Water: the community has no potable water system, although efforts are being made to organize a project through the MOH; water is currently obtained from wells and the Río Pasaúl.
- E. Health Services:
 - * nearest hospital: departmental capital of Santa Cruz del Quiché (43 kilometers distant).
 - * nearest health center: municipal capital of Sacapulas (13 kms.).
 - * nearest health post: Río Blanco (4 kms.).
 - * nearest pharmacy: two in the community.
- F. Community Health Personnel: 6 rural health promoters; 4 midwives (3 trained, with over 20 years of experience; 1 empirical, with approximately 25 years of experience).

2. Río Blanco (data presented are based on those available from the district health center and refer to the area of influence of the Río Blanco health post unless otherwise noted):

- A. Total Population (est.): 4,110 inhabitants, including the village of Río Blanco and its "caserios" (1,314 inhabitants in Río Blanco alone).

B. Mortality Data (1987):

# of live births:	218
# of maternal deaths:	4
# of neonatal deaths (< 28 days):	3
# of infant deaths (28 days-1 yr.):	7
# of child deaths (1-4 years):	11

C. Top Five Causes of Infant Morbidity (1987 data):

<u>Diagnosis</u>	<u>#</u>	<u>%</u>
1. Acute Respiratory Infections	26	34
2. Intestinal Parasites	22	29
3. Protein-Calorie Malnutrition	13	17
4. Skin Infections	10	13
5. Candidiasis	6	8

D. Primary Causes of Infant Mortality (1987 data):

<u>Diagnosis</u>	<u>#</u>
1. Dehydration	2
2. Acute Gastroenteritis	1
3. Fever of Unknown Origin	1

E. Vaccination Data (coverage data are unavailable; data pre-sented refer to number of vaccines applied during the July 1988 vaccination campaign):

<u>Age Group</u>	<u>Polio</u>	<u>DPT</u>	<u>Measles</u>
< 2 mos.	7	---	---
2 mos. - 1 yr.:			
1st dose:	8	11	5
2nd dose:	26	25	---
3rd dose:	4	5	---
1 - 4 years:			
1st dose:	5	3	1
2nd dose:	26	20	---
3rd dose:	12	11	---
"Booster":			
1st dose:	11	---	---
2nd dose:	88	---	---
3rd dose:	1	---	---

- F. Housing Conditions: the majority of homes are constructed of adobe with tile roofs.
- G. Sanitary Conditions: the district health center reports that 198 out of the 219 homes (90.4%) have latrines; however, based on a survey carried out by the promoters for the purpose of soliciting latrine floors, they claim the true number is 127 (58.0%).
- H. Primary Sources of Water: although there does exist a potable water system with in-house connections in this community, the system's function is deficient, and does not reach all homes. Many members of the community are forced to obtain their water from wells and streams.
- I. Health Services: the community has its own health post, attended by an auxiliary nurse; there is also one pharmacy in the village.
- J. Community Health Personnel: 5 rural health promoters; 3 trained midwives; residents also seek out the services of the local traditional healer ("curandero"), and the masseur ("sobador") from a neighboring village, for some ailments.

SAN LORENZO, SAN MARCOS

1. Municipality of San Lorenzo, San Marcos:

A. Total Population (1987 data): 7,015 inhabitants

Santa Rosa: 2,466 inhabitants (35.2%)
 Talquichó: 1,173 inhabitants (16.7%)

B. Mortality Rates (1987 data):

General Mortality: 8.0/1,000
 Infant Mortality: 88/1,000 live births
 Child Mortality (1-5 yrs.): 6.6/1,000

2. Santa Rosa (community-specific data):

A. Total Population (1987 data): 2,466 inhabitants (50.8% males).

< 1 yr.: 121
 1-5 yrs.: 426
 5-14 yrs.: 727
 women 15-44 yrs.: 436
 others: 756

B. Mortality Rates (1987 data):

General Mortality: 6.6/1,000
 Maternal Mortality: - 0 -
 Infant Mortality: 109.5/1,000 live births
 Child Mortality (1-5 yrs.): 7.0/1,000

C. Top Ten Causes of Infant Morbidity (January - June 1988):

<u>Diagnosis</u>	<u>#</u>	<u>%</u>
1. Upper Respiratory Infections	54	36.2
2. Intestinal Parasites	15	10.1
3. Acute Gastroenteritis	15	10.1
4. Tonsillitis	9	6.0
5. Scabies	7	4.7
6. Acute Enteritis	7	4.7
7. Acute Otitis	5	3.4
8. Bronchopneumonia	5	3.4
9. Wounds	4	2.7
10. Herpes Simplex	4	2.7
Other:	24	16.1
<u>Total:</u>	149	100.1

D. Diarrhea-Specific Morbi-Mortality (unspecified) Rates
(1987 data):

< 1 year: 8.0/1,000
1-5 years: 7.1/1,000

E. Vaccination Coverage (first "canalization" round, 1988):

<u>Polio:</u>	<u>Planned</u>	<u>Realized</u>	<u>%</u>
newborns:	18	15	83
< 1 year.:			
1st dose:	40	34	85
2nd dose:	9	7	78
3rd dose:	13	13	100
1-5 years:			
1st dose:	3	2	67
2nd dose:	3	2	67
3rd dose:	15	11	73
<u>DPT:</u>			
< 1 year:			
1st dose:	45	36	80
2nd dose:	12	9	75
3rd dose:	7	7	100
1-5 years:			
1st dose:	3	2	67
2nd dose:	5	4	80
3rd dose:	13	9	69
<u>Measles:</u>			
< 1 year:	25	21	84
1-5 years:	13	9	69
<u>BCG:</u>			
< 1 year:	50	42	84
1-5 years:	2	2	100
<u>Tetanus Toxoid:</u>			
pregnant women:			
1st dose:	15	9	60
2nd dose:	4	2	50

F. Housing Conditions: the majority of homes are constructed of adobe, with tin roofs and dirt floors; the remaining dwellings are of mud-and-wattle construction with tile or thatched roofs. Ventilation is generally adequate. There is no electricity in the community.

- G. Sanitation Conditions: 90% of the residents have sanitary latrines; the majority uses its garbage as compost. Only the health post has a septic tank.
- H. Principal Sources of Water: 80% of the population is served by the potable-water system with in-house connections; the remainder obtains its water from wells and springs.
- I. Health Services: the community has its own health post, run by an auxiliary nurse who attends an average of 20 patients per day. Support is also received from the rural health technician and an auxiliary nurse from the district health center for "canalization" efforts.
- J. Community Health Personnel: 6 rural health promoters; 6 trained midwives; one "volunteer collaborator" who assists with ORT and EPI activities.

3. **El Porvenir Talquichó** (community-specific data):

- A. Total Population (1987 data): 1,173 inhabitants (48.6% male; 44.8% indigenous).

< 1 year:	44
1-5 years.:	207
5-14 years.:	351
women 15-44 years:	202
others:	369

- B. Mortality Rates (1987 data):

General Mortality:	7.6/1,000
Maternal Mortality:	- 0 -
Infant Mortality:	208/1,000 live births
Child Mortality (1-5 yrs.):	4.8/1,000

- C. Top Ten Causes of Infant Morbidity (January - June 1988):

<u>Diagnosis</u>	<u>#</u>	<u>%</u>
1. Upper Respiratory Infections	14	21.9
2. Acute Gastroenteritis	13	20.3
3. Intestinal Parasites	12	18.8
4. Malnutrition	7	10.9
5. Skin Infections	6	9.4
6. Bronchopneumonia	5	7.8
7. Conjunctivitis	3	4.7
8. Otitis	2	3.1
9. Dog Bite	1	1.6
10. Inguinal Hernia	1	1.6
<u>Total:</u>	64	100.1

D. # of Cases of Infant Mortality by Cause (Jan.-June 1988):

Bronchopneumonia: 4
Fetal Distress: 1

E. Vaccination Coverage (first "canalization" round, 1988):

<u>Polio:</u>	<u>Planned</u>	<u>Realized</u>	<u>%</u>
< 2 mos.	10	8	80
< 1 yr.	12	12	100
1-5 yrs.	6	6	100
<u>Total:</u>	28	26	93

DPT:

2 mos-1 yr.	7	6	86
1-5 years	13	13	100
<u>Total:</u>	20	19	95

Measles:

9 mos-5 yrs.	16	16	100
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BCG:

< 1 yr.	31	27	87
1-5 yrs.	17	16	94
<u>Total:</u>	48	43	90

Tetanus Toxoid:

pregnant women	8	8	100
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F. Housing Conditions: the majority of homes are constructed of adobe, with tin roofs and dirt floors; the remaining dwellings are of wood, cement block or mud-and-wattle construction, with tile or thatched roofs and cement floors. Ventilation is deficient in most homes. There is no electricity in the community.

G. Sanitation Conditions: out of 202 homes, 162 (80.2%) have sanitary latrines; the remaining population has no adequate means of human-waste disposal. The majority uses its garbage as compost. There is no drainage system in the community.

H. Principal Source of Water: 100% of the population has had in-house, potable-water connections since 1976 when the system was constructed by the MOH (UNEPAR).

- I. Health Services: the nearest health service is the MOH health center located in San Lorenzo, the municipal capital, 2 kilometers away. There is one pharmacy in the community.
- J. Community Health Personnel: 6 rural health promoters; 3 trained midwives.

SAN PEDRO CARCHA, ALTA VERAPAZ

1. **Health District of San Pedro Carchá, Alta Verapaz:**

Mortality Rates:³⁰

General Mortality:	8.9/1,000
Maternal Mortality:	2.2/1,000
Neonatal Mortality:	13.6/1,000
Infant Mortality:	43.9/1,000
Child Mortality (1-5 yrs.):	12.1/1,000

2. **Esperanza Chilatz:**

A. Total Population:

1985 data:	351 inhabitants (52.1% male)
March 1988 data:	557 inhabitants
< 1 year:	29 (5.2%)
1-5 years:	81 (14.5%)
August 1988 data:	650 inhabitants

- B. Housing Conditions: the majority of the residents live in homes constructed of rough-hewn logs, with thatched roofs and dirt floors.
- C. Sanitation Conditions: 86% of the homes have latrines.
- D. Principal Sources of Water: the closest spring (2 kms. away) served as the source for the potable-water system built by members of the community in 1985. However, residents of the neighboring village, where the spring is located, began to cut the water supply to Chilatz in May of this year. The community is now forced to collect rain water to meet its needs. No other natural water source is available. It is unclear what the residents intend to do for water once the rainy season ends.

³⁰ Plan Operativo 1987: Area de Salud de Alta Verapaz. DGSS/MSPyAS.

- E. Health Services: a rough-hewn timber building serves as the community UDRI ("integrated rural-development unit"), founded as part of a multi-sectoral effort between the Ministries of Health, Education and Agriculture. The building consists of a communal meeting hall, a classroom and a small promotor-run health clinic open for two hours a day except for Sundays. Financial constraints have resulted in available equipment being very limited. Medicines are scarce, and those received do not always conform to the therapeutic needs of the population. Some of the donated multivitamins were observed to have expired as long ago as April 1985.
- F. Community Health Personnel: 3 active rural health promoters (plus one inactive); 2 trained midwives (one has been active for some 23 years; the other is new to the community); a couple of traditional healers ("curanderos"). The three promoters share responsibilities at the clinic, with one leaving the community each month in search of wage labor, while the remaining two alternate attending patients in the clinic and making home visits.

3. Santo Domingo Secaj (community-specific data):

A. Total Population: 615 inhabitants (46.8% male).

B. Mortality Data (1985):

General Mortality: 16 deaths

Infant Mortality: 76.9/1,000 live births

C. Top Ten Causes of Morbidity (January - June 1988):

<u>Diagnosis</u>	<u>#</u>	<u>%</u>
1. Intestinal Parasites	55	25.5
2. Anemia	54	25.0
3. Acute Respiratory Infections	33	15.3
4. Dysentery	31	14.4
5. Skin Infections	21	9.7
6. Otitis	7	3.2
7. Wounds	6	2.8
8. Mumps	3	1.4
9. Diarrhea	2	0.9
10. Urinary-Tract Infections	2	0.9
Other:	2	0.9
<u>Total:</u>	216	100.0

D. Sanitation Conditions: 95% of the homes have latrines.

- E. Principal Source of Water: over 50% of the homes have piped water.
- F. Health Services: as in the case of Chilatz, a small promotor-run health clinic was established as one of the components of the community UDRI. The clinic is stocked with minimal equipment and basic medicines.

SANTA LUCIA COTZUMALGUAPA, ESCUINTLA

1. Belice, Escuintla:

- A. Total Population (1988 estimate): 260 inhabitants.
- B. Primary Causes of Morbi-Mortality: according to the rural health promoters of this community, diarrheal disease and respiratory infections are the most common illnesses suffered by the population.
- C. Housing Conditions: the majority of homes are constructed of bamboo, with thatched roofs and dirt floors. A few are of wood with tin roofs and cement floors.
- D. Sanitation Conditions: although most homes have latrines, the community claims to have received little supervision in their construction and use; they are thus generally inadequately installed and utilized.
- E. Principal Source of Water: streams (field investigators observed that community members do not boil the water obtained from this source).
- F. Health Services: residents of this community seek health care at the health post in Siquinalá (attended by an auxi-liary nurse and a sixth-year medical student), and at the health center in Escuintla. The nearest pharmacy is in Siquinalá.
- G. Community Health Personnel: 5 rural health promoters; 3 midwives (1 trained).

2. Las Cruces Esfuerzo de Cerezo, Siquinalá:

- A. Total Population: the original "finca" was divided into lots for 140 families. As of mid-September 1988, 64 fami-lies had relocated to the community, for an estimated total population of 320 inhabitants.
- B. Primary Causes of Morbi-Mortality: according to the obser-vations of field investigators, malnutrition, intestinal parasites and malaria are the principal ailments affecting this community.

- C. Housing Conditions: the majority of homes are constructed of wood, with tin roofs and dirt floors; the rest are of cement block, with asbestos roofs and cement floors.
- D. Sanitation Conditions: the district sanitation inspector actively promoted the installation of latrines in this new community at the time of the promotor training course this past summer. Most residents have complied, or are in the process of complying, with his instructions. Field investigators discovered, however, that many community members are ignorant of the benefits and rationale behind their installation and use.
- E. Principal Source of Water: streams (field investigators observed that community members do not boil the water obtained from this source).
- F. Health Services: the health service most accessible to this population is the health post in a neighboring village. The nearest pharmacy, health center and hospital are in Escuintla.
- G. Community Health Personnel: 8 rural health promoters; 3 midwives (1 trained).

J. General Background Data on Rural Health Promoters in Study Communities

(Summarized from Field Reports)

SACAPULAS, EL QUICHE

PASAUL CENTRAL:

1. Total # of Rural Health Promoters: 6
2. History as Rural Health Promoters:
 - A. Time in Service: 2-14 years.
 - B. Selection Process: the district rural health technician selected three of these six promoters; the remaining three were self-selected.
 - C. Selection Criteria: personal interest on the part of those who were self-selected; those selected by the rural health technician were also chosen based on personal interest, as well as demonstrated work initiative and prior collaboration in health projects.
 - D. Motives Mentioned for Becoming Rural Health Promoters: to work for the benefit of the community.
 - E. Possible Reasons Why Might Abandon Role as Rural Health Promoters: none of the promoters expressed any desire to abandon role in spite of the "limitations" confronted.

RIO BLANCO:

1. Total # of Rural Health Promoters: 5
2. Personal Data:
 - A. Gender: 2 males; 3 females.
 - B. Age: 31 - 53 years (average = 38).
 - C. Marital Status: all 5 are married (2 are a married couple, with the wife's father and a female cousin also being pro-motors; thus there exists a family relationship amongst four out of the five promoters in this community).
 - D. # of Children: all have 6 children.

3. History as Rural Health Promotors:

- A. Time in Service: 4 were originally trained in a year-long course 14 years ago; the fifth was incorporated into the group 5 years ago through attendance at a retraining session.
- B. Selection Process: the district rural health technician at the time of the initial training course 14 years ago (a native of Rio Blanco), personally selected 4 out of these 5 promotors; the fifth joined the group during a subsequent retraining session nine years later; all 5 received support for their candidacy either from the Catholic church or from relatives in positions of political power.
- C. Selection Criteria: personal interest on the part of those candidates trained 14 years ago; current district selection criteria are said to include: leadership capacity, acceptance by the community, and ability to read and write.
- D. Motives Mentioned for Becoming Rural Health Promotors: interest in serving their community (criticism from neighbors for "working without a salary" and "wasting time" in making home visits has not dampened their motivation).
- E. Aspirations within the Health Field: one promotor stated she would like to work in a health post, but in her own community, as family obligations prevent her from moving elsewhere.

4. Socio-Economic Status within Community:

- A. Educational Level: the two males have each completed one year of primary-school studies; of the three females, one has completed three years and another the full six years of primary school; the third has had seven years of study.
- B. Religious Affiliation: all 5 are Catholic.
- C. Political Affiliation: the community in general identifies strongly with the political party currently in power (the Christian Democrats); all 5 promotors are associated in some way with the local party committee (one is the wife of the mayor of Sacapulas).
- D. Economic Status: better than average as compared to other community members (one promotor has a store and a corn mill and another runs a small "pharmacy"); the 3 female pro-motors are all members of the board of directors of the local cooperative bakery and dedicate

one day a week to this effort; promoters' homes tend to be bigger than those of the majority of their neighbors, and it was observed that they enjoy generally better living conditions overall.

- E. Dress: the three female promoters continue to conserve traditional indigenous dress.
- F. Language: all 5 are bilingual (Quiché/Spanish); Quiché is the language of choice in their homes, although the younger children express a preference for Spanish.
- G. Sanitary Conditions in the Home: good.
- H. Leadership Characteristics: all 5 have demonstrated leadership ability and are well respected in the community.

SAN LORENZO, SAN MARCOS

SANTA ROSA and EL PORVENIR TALQUICHO:

1. Total # of Rural Health Promoters: 12 (6 in Talquichó, and 6 in Santa Rosa plus one "volunteer collaborator").
2. Personal Data:
 - A. Gender: 11 males; 1 female.
 - B. Age: 30-42 years.
 - C. Marital Status: 11 married; 1 single.
 - D. # of Children: average = 4.
 - E. Current Principal Occupation: agriculture (11); housewife (1).
3. History as Rural Health Promoters:
 - A. Time in Service: average = 4 years.
 - B. Selection Process: 80% of the promoters were proposed by their respective communities; 20% were selected by the district rural health technician.
 - C. Selection Criteria: know how to read and write; demonstrated community-leadership skills; able to dedicate time to community and to collaborate in health-related projects.

- D. Training/Retraining: initial training (25 days) was carried out by health-district personnel; retraining courses are held for 3 days each year, with monthly sessions specifically oriented towards immunization, diarrheal-disease control and acute respiratory infections.
 - E. Motives Mentioned for Becoming Rural Health Promoters: to contribute towards the well-being and betterment of their communities; to prevent disease; to save children's lives.
 - F. Possible Reasons Why Might Abandon Role as Rural Health Promoters: incapacitating illness; death; migration to another community for reasons of economic necessity; lack of acceptance by community members.
 - G. Occupation Prior to Becoming Rural Health Promoters: agri-culture (11); housewife (1).
 - H. Aspirations within the Health Field: to study nursing; obstacles: lack of economic resources.
4. Socio-Economic Status within Community:
- A. Educational Level: the average of 3 years of primary-school studies is above that of most other community members.
 - B. Religious Affiliation: 7 are Evangelicals of the "Central American" sect; 2 are Catholics; 3 expressed no religious affiliation.
 - C. Political Affiliation: 2 specified formal affiliation with some political party; remainder only "sympathizers".
 - D. Economic Status: all are home-owners with land ("minifundistas"); the majority have radios and maintain small numbers of domestic animals (sheep, chickens, pigs, cows).
 - E. Dress: western "ladino" style.
 - F. Language: 3 are bilingual (Mam/Spanish); the rest are monolingual Spanish speakers.
 - G. Location of Homes: accessible.
 - H. Sanitary Conditions in the Home: the majority have piped water, latrines, corrals for their animals, compost heaps, separate kitchen and raised cooking surfaces; most homes are of adobe or mud-and-wattle walls, tin roofs and dirt floors.

- I. Leadership Characteristics: besides their roles as rural health promoters, all 12 serve in at least one other community-development role (e.g. promoters with the Ministry of Agriculture, serve on potable-water committee, etc.).

5. Promoters Interviewed:

- A. Santa Rosa: Héctor Rabanales, Anibal Valiente, Agapito Rodas, Coronado Marroquín, Mariano Sandoval, Basilio Salvador, and José Rodas (Volunteer Collaborator).
- B. Talquichó: Candelaria Ochoa de Rabanales, Ambrosio Barrios, Sergio Rabanales, Raúl Candelario Rodas Rabanales, Eulalio Baltazar, Enoé Sandoval.

SAN PEDRO CARCHA, ALTA VERAPAZ

ESPERANZA CHILATZ:

1. Total # of Rural Health Promoters: 3 active; 1 inactive (currently working as a promotor with the Ministry of Agriculture which pays its promoters).
2. Personal Data (on the three active promoters):
 - A. Gender: all three are male.
 - B. Age: 20-25 years.
 - C. Current Principal Occupation: agriculture.
3. History as Rural Health Promoters:
 - A. Selection Process: the original (now inactive) promotor and one of the current ones were appointed by the UDRI ("integrated rural-development unit") committee; the still-active promotor then proposed two friends whose candidacy was also approved by the committee and who subsequently received their orientation at a retraining course in May of this year.
 - B. Motives Mentioned for Becoming Rural Health Promoters: to provide health care to the community.
 - C. Possible Reasons Why Might Abandon Role as Rural Health Promoters: economic necessity.

4. Socio-Economic Status Within Community:

- A. Educational Level: average = 3 years of primary-school studies.
- B. Religious Affiliation: all 3 are Catholic.
- C. Economic Status: all 3 promoters are amongst the poorest members of the community, and are routinely forced to migrate elsewhere for up to a month at a time in search of wage labor (the promoters alternate leaving the community so that at least one always remains to attend patients at the URDI and make home visits).
- D. Language: all 3 are native Kekchi speakers, and two experience great difficulty with Spanish (interviews were translated by one of the health-district team members).

SANTO DOMINGO SECAJ:

1. Total # of Rural Health Promoters: 2

2. Personal Data:

- A. Gender: both male.
- B. Age: 19 and 33 years of age.
- C. Marital Status: the younger promotor is single and still living with his parents; the older one is married.
- D. # of Children: the married promotor has four children.
- E. Current Principal Occupation: both are small-scale agricultural producers; the older promotor also sells hammocks and other handmade items.

3. History as Rural Health Promoters:

- A. Selection Process: both were selected by the community.
- B. Selection Criteria: in addition to MOH-normatized criteria, the community was requested to hold a general meeting in which candidates were proposed and community support to them pledged.

4. Socio-Economic Status Within Community:

- A. Educational Level: the younger promotor completed one year of primary-school studies; the older one learned to read and write through evening classes.

- B. Religious Affiliation: both are Catholic.
- C. Language: both are native Kekchi speakers and experience great difficulty with Spanish (interviews were translated by the health-district team member).
- D. Location of Homes: the younger promotor lives 10 minutes from the UDRI ("integrated rural-development unit") health clinic; the older one lives an hour and a half away by foot.

SANTA LUCIA COTZUMALGUAPA, ESCUINTLA

BELICE, ESCUINTLA:

- 1. Total # of Rural Health Promoters: 5
- 2. Personal Data:
 - A. Gender: 2 males; 3 females.
 - B. Age: 2 are 18-29 years of age, and 3 are between 30-60.
 - C. Marital Status: 2 are married, and 3 are single.
 - D. # of Children: average = 4.
- 3. History as Rural Health Promoters:
 - A. Time in Service: completed initial training course in August 1988.
 - B. Selection Process: the midwife's daughter learned of the up-coming training course and informed her mother and other family members.
 - C. Selection Criteria: personal interest on the part of pro-motor candidates in attending training course.
 - D. Motives Mentioned for Becoming Rural Health Promoters: to "learn how to inject"; desire to serve and use acquired knowledge for the benefit of family and community members; interest in obtaining scholarships ("becas") to receive additional training in the United States.
 - E. Possible Reasons Why Might Abandon Role as Rural Health Promoters: none mentioned any desire to abandon new health-worker role, and speculated that they would do so only in the event of migration to another community.

4. Socio-Economic Status within Community:

- A. Educational Level: the average of 4 years of primary-school studies (range = 2 - 6 years) is above that of most other community members.
- B. Religious Affiliation: all 5 are Catholic.
- C. Political Affiliation: none expressed.
- D. Economic Status: better than average as compared to other community members (e.g. larger plots of land; additional sources of employment and income); all are members of one of the oldest families in the village.
- E. Location of Homes: centrally located and accessible.
- F. Sanitary Conditions in the Home: relatively acceptable hygiene conditions, but with deficiencies noted particularly in regard to domestic animals; all five promoters have latrines in their homes, although some are poorly installed and inadequately used; drinking/cooking water is obtained from a stream in a nearby ravine.
- G. Leadership Characteristics: the role of community leader is evident amongst these promoters--one due to her labors as the local midwife, another for having been a local authority; respect is also accorded them for simply being members of one of the community's "first families".

LAS CRUCES ESFUERZO DE CEREZO:

- 1. Total # of Rural Health Promoters: 8
- 2. Personal Data:
 - A. Gender: 4 males; 4 females.
 - B. Age: 5 are 18-19 years of age, and 3 are between 30-60.
 - C. Marital Status: 5 are married, and 3 are single.
 - D. # of Children: average = 4.
- 3. History as Rural Health Promoters:
 - A. Time in Service: completed initial training course in August 1988.

- B. Selection Process: the district rural health technician held a general meeting to inform community members of the up-coming training course and to invite their participation.
 - C. Selection Criteria: personal interest on the part of pro-motor candidates in attending the training course.
 - D. Motives Mentioned for Becoming Rural Health Promoters: desire to serve and use acquired knowledge for the benefit of family and community members; absence of trained health personnel in the community.
 - E. Possible Reasons Why Might Abandon Role as Rural Health Promoters: none mentioned any desire to abandon new health-worker role, and speculated that they would do so only in the event of migration to another community.
 - F. Aspirations within Health Field: trained midwife; auxiliary nurse; work in a health post.
4. Socio-Economic Status within Community:
- A. Educational Level: the average of 4 years of primary-school studies (range = 2 - 6 years) is above that of most other community members.
 - B. Religious Affiliation: 4 are Evangelicals; 1 is Catholic.
 - C. Political Affiliation: none expressed.
 - D. Economic Status: plots of land are equally distributed amongst all community members, but promoters tend to enjoy generally better living conditions than their neighbors.
 - E. Location of Homes: distributed throughout the village (each family's lot site was selected in a random draw).
 - F. Sanitary Conditions in the Home: better than average as compared to neighbors; only 17% of all homes have latrines (the rest are currently in the installation stage); drink-ing/cooking water is obtained from a stream in a nearby gorge.
 - G. Leadership Characteristics: the majority of these promoters exercise strong leadership roles within their community (one is the wife of the community's principal organizer and a leader in her own right; one is a religious leader; another is a member of the board of directors of the Mothers' Committee; and two are members of another local committee).