

PD-ANX-598

ASN-55364

REVIEW OF THE MONITORING SYSTEM
OF THE
PAKISTAN PRIMARY HEALTH CARE PROJECT

Report Prepared By PRITECH Consultant:
MARC MITCHELL

During The Period:
September 11 - 28, 1987

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT

Supported By The:
U.S. Agency For International Development
AID/DPE-5927-C-00-3083-00

AUTHORIZATION:
AID/S&T/HEA: 2/23/88
ASSIGN. NO: SS 224

TABLE OF CONTENTS

	page
I. Executive Summary	1
II. Scope of Work	2
III. Overview of Monitoring System	3
Background	
Objectives	
Implementation Strategy	
IV. Performance to Date	7
Protocols	
Monitoring	
Areas for Further Attention	
VI. Recommendations	12
Treatment Protocols and Monitoring Forms	
Implementation	
Introduction of microcomputers	
APPENDICES	
1. Revised Implementation Schedule	16
2. Revised Standard Treatment Protocols	17
3. Revised monitoring Forms	23
4. Agenda and discussion of DHS's Meeting 9/22/87	29
5. Persons Contacted	33

I. Executive Summary

This consultancy is a follow-up of an earlier visit in October, 1986 to help develop a monitoring system for the USAID funded and managed Primary Health Care (PHC) Project. At the time of the first visit, a number of problems were identified at many of the Rural Health Centers (RHC) and Basic Health Units (BHU), including uneven performance by the doctors both in terms of management and clinical care, poor utilization of the centers by the rural population, and lack of information available to mid and senior level managers. Based on these observations, recommendations were made to focus activities at the health centers in six priority areas, develop standard treatment protocols for use in these areas, and develop a monitoring system. These six priority areas are:

- control of diarrheal disease
- immunizations
- malaria
- acute respiratory infections
- tuberculosis
- nutrition

In each of these areas, a set of standard treatment protocols was developed to promote these activities at the health centers and basic health units in the country. In conjunction with these treatment protocols, a three tiered monitoring system was developed based on forms for use on a weekly basis by the health center staff, a monthly form for use by health center supervisors (District Health Officers or Assistant District Health Officers) when they visit the centers, and a quarterly reporting form for use by District Health Officers (DHO's) in reporting to the provincial Director of Health Services (DHS). A manual was developed for guiding health personnel staff in the use of this monitoring system.

The monitoring system and associated standard treatment protocols were field tested in 13 Rural Health Centers for 5 months between the initial and follow-up consultancies. During this trial period the activities of the health center staff changed significantly. Weekly staff meetings were held with the entire health center staff to discuss weekly performance in each of the six priority areas, monitoring forms on which drug shortages were noted for ordering and receiving extra supplies from the District Health Officer of these essential drugs (penicillin, TB drugs) were used and, to varying degrees, the standard treatment protocols were used in treating patients. The result is a general improvement in the quality of care which is being provided to patients, and a widening of responsibility of the Medical Officer in Charge from mainly curative to preventive services as well. As a result, we have seen an increase in the numbers of patients using these "test" facilities.

For the moment it is too early to tell whether this monitoring system will be a satisfactory model for the entire country; it will be a major hurdle to expand the small scale trial to a national program. Nevertheless, it is recommended that the monitoring system be continued and gradually introduced into other centers, and its progress be closely watched. More specifically, it is recommended that the system of standard treatment protocols be widely expanded and that the monitoring system, which requires more intensive supervision, be expanded more gradually.

II. Scope of Work

OBJECTIVE: Recommend to Ministry of Health Authorities improvements for the monitoring system for the A.I.D. funded primary health care project based upon field experience during the test phase and suggest a data management system for monitoring.

SCOPE OF WORK: In collaboration with the Government of Pakistan (GOP) and USAID, the consultant should undertake the following task:

1. Meet with the PHC Project staff to review experience with the monitoring system and criteria for choice of sites;
2. Make field visits to meet with people involved in PHC monitoring at the division, district, and health center level;
3. Refine system, reporting forms, and users' manual according to implementation experience;
4. Suggest how project staff could improve supervision of monitoring;
5. Outline training necessary for management of monitoring data, particularly introduction of use of micro computers;
6. Define elements which will be required for data management at national and provincial levels;
7. Briefing with Ministry of Health Officials for approval of System.

III. OVERVIEW OF MONITORING SYSTEM

BACKGROUND:

In October, 1986, when this monitoring system was developed, several problems with the services being provided at the RHC's and BHU's throughout the country were observed. These include:

- (1) Significant underutilization of these facilities in general but good utilization where there was a knowledgeable, well-motivated physician and an adequate supply of a few key pharmaceuticals;
- (2) Medical Officers in Charge (MOIC) of most facilities were unsure of their administrative role at the centers and of the appropriate clinical care of many of the patients they saw. This problem of treatment quality was particularly acute in the case of women and children, since most physicians in Pakistan have had only very minimal training in pediatrics and obstetrics/gynecology. A second component of the quality of care issue was the unavailability of some important drugs, particularly antibiotics, at the facilities.
- (3) There was virtually no flow of information from the RHC's and BHU's to the supervisors of these centers, District Health Officers (DHO), Provincial Directors of Health Services, and Federal Health Administrators. As a result, it was extremely difficult for these mid-level and senior officials to improve the situation at the health facilities.
- (4) The Primary Health Care Project was aware of these problems, but because there was no clear focus on which interventions would be most helpful in improving the situation, the project was not moving ahead in its ability to meet its stated goals and objectives before the end of the funding period. In addition, the project itself did not have adequate information about what progress, if any, was being made in the quality of the services being provided at the health facilities.

OBJECTIVES:

Based on these observations, a number of objectives for this monitoring system were developed. These objectives are:

- (1) To improve the quality of services being provided at the RHC's and BHU's by focusing attention on a few key clinical activities which will have the highest impact on the health of the population. The most important of these activities is developing standard treatment protocols in six high priority clinical areas:
Diarrheal Diseases, Acute Respiratory Infections
Immunization Screening, Fever
Prolonged Cough, Nutrition,

- (2) To improve the quality of services being provided at the RHC's and BHU's by focusing attention on a few key management activities by the doctor in charge at the health facilities. These include:
- weekly staff meetings at which issues related to the 6 activities above are discussed;
 - defining the role of the doctor in charge to include responsibility for all activities occurring at the center including nutrition, EPI, etc.;
 - monitoring the drug inventories of the 11 pharmaceuticals (including vaccines and ORS) which are required for the standard treatment protocols;
 - monthly meetings with the Assistant District Health Officer to ensure adequate supplies of drugs and resolution of other problems; and
 - increasing service to the community through outreach activities.
- (3) To improve the information being provided to the Assistant District Health Officer (ADHO) and DHO about the quality of the services being provided at the RHC's and BHU's through the design and use of a very simple monitoring form which will be filled out monthly by the MOIC or ADHO for each center and then discussed and signed by both of these officers. Because information relating to the quality of care will be used primarily at the level of the ADHO and DHO, whose responsibility it is to ensure adequate quality, the forms remain at this level.
- (4) To improve the information being provided to the Primary Health Care Project on the quality of the services being provided at the RHC's and BHU's in order to satisfy the reporting requirements of USAID and to provide a mechanism to monitor the success with which this project is achieving its objectives of improving the quality of services being provided at RHC's and BHU's. Since the information being collected by the ADHO's is essentially the same as that needed by USAID, the same form can be used for both purposes.
- (5) To provide statistical information to the provincial and national level staff for the purpose of monitoring the effectiveness and impact of their program strategies in the 6 priority areas discussed above. Because information for this purpose must be aggregated and reported in terms of comparative information, a third "Quarterly Reporting Form" was developed together with a manual for its use. It is recognized that this quarterly form does not, by itself, provide a complete statistical monitoring system, and was designed only as the first step in this process.

IMPLEMENTATION STRATEGY:

The first step in the implementation process is the design of the standard protocols based on the 6 priority areas, and the design of monitoring forms for monitoring the performance of the RHC and BHU staff in using these protocols. This step was completed October, 1986 after discussions with the Director of Health Services and directors of national programs such as malaria, EPI, TB, and CDD. Because the system which was recommended was a considerable change from that which was in use in the RHC and BHU, it was decided to introduce the system slowly. A small number of centers were selected as sites to test the system for 6 months, after which period the progress would be reviewed.

Before reviewing the performance of the test sites, there are several issues to keep in mind which link the implementation strategy back to the objectives for this system.

- (1) The underlying purpose of this effort is to improve the quality of those services which are provided at the RHC's and BHU's throughout Pakistan. To achieve this end, simplicity is considered to be of paramount importance for the required training in the recording and use of monitoring forms and in the successful implementation of this system.
- (2) Because of the newness of this approach to monitor quality at the RHC's and BHU's, we needed to closely control the initial stage of implementation to ensure that it is done correctly. For this reason, the first stage of implementation started in a small number of centers which the PHC project staff could visit on a weekly basis in order to introduce and monitor the system. It is recognized that eventually, introduction at new centers will need to be done by MOH staff, preferably the ADHO's, but for the initial stage, all training has been left to the PHC project staff in each province.
- (3) In many cases, the actual data recorded on the monitoring forms is less important than the actions required to find the data or react to it. For example, on the weekly form, the purpose is to promote weekly staff meetings at each health facility, and to review selected key activities and note problem areas. The actual answers to each question are less important than that the questions are asked. In the same way, many questions on the monthly form are designed to force ADHO's and MOIC's to look at potential problems and to act on them. Whether these problems are correctly recorded on the sheets is less important. Thus, in reviewing the performance of the system, it is important to look at the regularity of reporting and what actions are taken in response to the system as well as to the data which is recorded.

- (4) The system has been designed as a model for Pakistan, rather than as a system for use exclusively by USAID in monitoring their PHC project. Accordingly, the system is an imperfect one for monitoring the PHC Project. The end result, however, is that the project will have a much wider impact than it would have had otherwise.

IV. PERFORMANCE TO DATE

Actual implementation of the system began early in 1987 with discussions and recommendations by the Provincial Directors of Health Services. The standard treatment protocols and monitoring forms have been field tested in 15 Rural Health Centers; 7 in Punjab, and 2 in each of the other 3 provinces. A list of these centers and the dates the system was introduced is listed on the next page. It should be noted that due to delays in selecting the sites, actual implementation did not begin until May and for some centers as late as September. To review the progress of the system, the consultant visited 5 test sites in 3 provinces; met with staff from other centers and with the DHO's from 2 districts where the system was being implemented; talked with the management analyst (MA) for each province; and held a meeting for the DHS's and provincial program directors to discuss the progress of the monitoring system and make plans for future implementation. The agenda and list of participants of this meeting is included in appendix 4.

Overall, the implementation of the standard treatment protocols and the monitoring system has gone well. Perhaps a good indication of this is the acceptance for use by all centers selected and all staff with whom I spoke, and the participation by the National Director-General Health and the DHS's of 3 out of 4 Provinces at the meeting to discuss this system. The questions which have been raised have been about specific treatment protocols or monitoring issues rather than about the validity of the overall approach. In addition, the DHS's have agreed to include this system as a central component of all [inservice] Medical Officer Training taking place in the provinces, and to endorse the standard treatment protocols by allowing their signatures to be used on posters being prepared which lay out the details of the treatment protocols, and will be distributed at every health facility in the country where the system is being introduced. The main concern of the DHS's is that we expand the system so that it will be available at more centers. They do, however, recognize the problem of expanding too quickly. The consensus of support for the overall approach is a tribute to the work of the management analysts in each province, the management advisor, and the project director, Dr. Zafar Ahmad.

HEALTH CENTERS WHERE SYSTEM HAS BEEN IMPLEMENTED

PROVINCE	DIVISION	DISTRICT	HEALTH CENTER	DATE BEGUN
Punjab	Lahore	Lahore	Chung	5/87
	Rawalpindi	Rawalpindi	Bagga Shaikhan	6/87
	Rawalpindi	Jhelum	Sohawa	6/87
	Rawalpindi	Sarogodha	Farooka	6/87
	Multan	Muzaffar Garh	Shehar Sultan	9/87
	Multan	Gahawapur	Uch Sharif	6/87
	Multan	Rahim Yar Khan	Minwali Quereshian	7/87
NWFP	Peshawar	Peshawar	Jamalabad	4/87
	Peshawar	Peshawar	Khairabad	5/87
Baluchistan	Sibi Kachi	Kachi	Dhadar	5/87
	Quetta	Pishin	Pishin	5/87
Sind	Hyderabad	Mirpurkhas	Pithoro	8/87
	Hyderabad	Thatta	Darro	8/87

STANDARD TREATMENT PROTOCOLS

Significant progress is being made in the use of standard protocols, although in most instances, some component of the protocol is not being followed correctly. For example, in the area of diarrheal disease, most centers are now giving children ORS at the health facility, instructing mothers in continuing feeding and the use of ORS, and have developed an ORT corner at the center. Most centers, however, also continue to prescribe antidiarrheal drugs for patients. For EPI, centers are now screening all mothers and children walking through the door, but some reported that mothers resist getting immunized with TT. The female staff are having increasing success convincing mothers to accept TT immunization. With ARI, staff argued with the doses of Penicillin and with the need to have an oral drug as an alternative, but most accepted the concept of a standard treatment for patients with fever, cough and an increased respiratory rate. For malaria, there were questions raised about treating all patients with fever and about using oral rather than injectable chloroquine, but again most patients did get treated and have a blood slide taken. In fact, with malaria, there is some question about the protocol, due to the difficulty of getting blood slide results in time to be clinically useful and to the problem of false negative blood slides meaning patients may receive inadequate doses of chloroquine for their malaria. However, after discussions with the director and AID advisor to the national malaria program, the protocol in use was not changed, but will be followed closely by the DHS's in each province. The TB protocol, following the national protocol exactly, does not pose problems.

MONITORING FORMS:

The purpose of the weekly monitoring form is to focus discussion at weekly staff meetings on key priority areas. By this measure, this component of the system has been quite successful. Most centers are now having weekly staff meetings and filling out the weekly forms. This may be largely due to the weekly visits of the management analysts to each center but there were several instances in NWFP where centers which were not visited for several weeks by the MA still had their weekly meetings and filled in the reports. The MOIC's with whom I met seem to feel that the meetings were useful in giving the staff some information about what others were doing, and in making the staff (including the MOIC himself) aware that the MOIC is in charge of all programs in addition to having responsibilities for ill patients. While the success of this particular aspect of the weekly meeting was not uniform, there is movement in the right direction.

Considerable input from the management analysts is still required with the monthly forms but the ADHO's are beginning to take an interest in the kinds of information which is being supplied and so are more enthusiastic about using them. In NWFP, ADHO's were surprised to see that about 30% of

the patients seen were women aged 15-45, and 15% were children < 2 years, and that these numbers were similar for both centers where the system has been implemented. However, the success of these forms must be measured by the extent to which they are being used to identify and rectify problems. While there is still only anecdotal evidence to date, the results are promising. In one instance, the MOIC used the information from this form to show the DHO that he was consistently out of stock of penicillin, which resulted in his being provided with more. In another instance, the provincial TB control officer was notified of stockouts of TB medications and more drugs were promised. At all the test centers visited, stocks of the drugs needed (with the exception of thiacetazone) are adequate, which contrasts a non-test center visited by a colleague where few of these drugs are available. Perhaps the best measure of the success of this component is that the DHS reports that the centers using the system have reported substantial increases in the numbers of patients which they are seeing. If it is true that patients visit more frequently those centers where the community perception is that they receive better care and have more supplies, an increase in the patient load at those centers using this monitoring system may be an indication that the system is having some positive results.

The use of the Quarterly reporting forms has been difficult to evaluate since it has not been in use long enough. It is intended for use at the district level to aggregate information from all the centers on a quarterly basis using the monthly forms as a data source. However, since there are no districts where all the centers are participating, and since the system has been used for less than two full quarters in all centers, we cannot evaluate this form. Furthermore, since this form will provide the data used in developing a national reporting system, careful attention will be required in providing the data in a form that can be used. The question of redesigning this form is discussed further in the section on recommendations.

AREAS FOR FURTHER ATTENTION:

Overall, the implementation of the system is going very well, both in terms of acceptance by both junior and senior staff, and in terms of the results we are obtaining. Nevertheless, there are some areas of considerable concern.

- (1) Perhaps the most serious concern is with the quality of the information which is being collected at the centers. While the primary focus remains on changing behavior, rather than collecting data, it is still important to try to collect accurate data if any meaningful use is to be made of the information. On the monthly forms, it was noted that most answers indicated that all patients are being treated with the standard protocol; however, in reviewing the daily register, it was noted that this is not always the case. For example, any child given ORS is recorded as having received the proper treatment, even if no mother counseling was given and if other

antidiarrheal drugs were given. While this is not surprising, it is an area in which careful attention must be given by the management analysts and other supervisory staff if the system is to have the desired effect. Supervisory visits should include checks on the data which is provided, and supportive training for the MOIC to understand that he will not be evaluated on the data which is supplied.

- (2) A second major concern is how to expand the system beyond the current 13 sites. This was discussed at the DHS meeting, where it was decided to proceed slowly and develop an expansion plan for each Province. The key ingredient in significant expansion will be the training and support of the DHO's and ADHO's who will be responsible for introducing and monitoring the system at new centers. While most DHO's give support to the effort, my impression was they really didn't understand what the purpose was and so were rather passive in its use. Their participation must be full rather than simply passive, so further training and explanation is essential. As a first step, the DHS's in each province have agreed to organize a meeting of all their DHO's where I can explain the system, present the current findings, and attempt to promote the enthusiasm of these key administrators.
- (3) A third concern is that this system is being implemented at a time when many monitoring systems are being reviewed and changed in Pakistan. PRITECH has had a team (on which I participated) developing a monitoring system for the CDD program. A new monitoring system for IPI is being developed. Attention is now being given to developing a new national reporting system, and the D-G Health has requested assistance in this area. A new system for the Child Survival Project may be anticipated. If all these systems are developed independently, none of them will work effectively. Considerable attention has already been given to ensuring the consistency of the various systems, and the MOH, NIH, and USAID should all be commended on this effort. This will be an important area to continue to watch in the future.

V. RECOMMENDATIONS

TREATMENT PROTOCOLS AND MONITORING FORMS

With the monitoring system working reasonably well for being in place for such a short time in such a small number of centers, it is important not to recommend too many changes in the standard treatment protocols or in the monitoring forms. The changes which are recommended in these areas are the results of problems which have been noted by the RHC staff in using the protocols and have been discussed and agreed to by the DHS's. The revised protocols and monitoring forms are presented in appendices 2 and 3. Very briefly, the recommended changes are:

- (1) **Immunizations:** The national policy (after much debate on the point) is to immunize only married women age 15-45 with TT. Accordingly, the protocol should be changed to be consistent.
- (2) **Malaria:** Because of the considerable and unnecessary use of injectable chloroquine, the use of oral chloroquine only is recommended. Note that there is some concern about the use of slides for the diagnosis of malaria given the problem of slow return of results and of false negative slides, but it should be agreed to follow the national protocol for the time and to review again later.
- (3) **ARI:** Some of the drug dosages on the old protocols were incorrect, and the choice of alternate drug protocols were not specified sufficiently. Accordingly, the protocol should be simplified and Trimethoprim-sulfa be given as an alternate drug, consistent with WHO recommendations.

The following changes in the monitoring forms are recommended:

- (1) The list of drugs on the forms should be modified to be consistent with the new protocols: chloroquine specified as oral, thiacetazone added for TB, penicillin specified as procaine penicillin, and trimethoprim-sulfa added.
- (2) Estimates of immunization targets should be changed to (population x .366 / 12) to be consistent with EPI program estimates.
- (3) Quarterly forms should be modified to give more numerical data to be used as the basis for the national reporting system.

IMPLEMENTATION:

The standard treatment protocols and monitoring system are still in their infancy. While they appear to have made a contribution to the performance at the RHC's and BHU's where they are being used, they need further testing and modification before they are implemented on a wide scale. Furthermore, before wide scale implementation can begin, a substantial effort is required to train ADHO's and DHO's. Accordingly, careful attention to how the program will be expanded is critical at each step and for each component of the program. Additionally, the likelihood of the introduction of microcomputer technology into the system demands research into how it will give the most benefit without overwhelming the staff. After discussing these points with the DHS's and USAID, the following implementation strategy is recommended:

- (1) The standard treatment protocols appear to be close to their final form. Staff at the test centers feel that the guidance they provide has been helpful. Accordingly, it is recommended that the standard treatment protocols be introduced to all Integrated Rural Health Complexes (IRHC's) by the end of 6 months.
- (2) To support the expansion of the standard treatment protocols, a series of posters should be prepared by USAID for use at all IRHC's. These posters will include the standard treatment protocols, and be signed by the 4 DHS's and the D-G Health to indicate to all staff that they are the official policy of the government. The posters should contain the complete protocols, and be hung on the walls of each center to help the staff and the patients know the proper treatment. A description of the posters was presented in the first consultancy report on the monitoring system done in October, 1986.
- (3) A second critical component of the successful expansion of the use of standard treatment protocols is the training of medical officers. Fortunately, the Primary Health Care Project is already providing medical officer training in all provinces and the standard treatment protocols can be easily incorporated into this training. The management analyst in NWFP has already done this to some extent in the courses given in his province. It is strongly recommended that Dr. Upreti, training expert on the PHC Project staff, assist in the design of the medical officer training curriculum.

- (4) Unlike the expansion of the standard treatment protocols, the expansion of the monitoring forms will require considerable inputs of time by the Primary Health Care Project staff and the provincial staff. As discussed in the previous chapter, it will require the training of all ADHO's and DHO's in the country. Accordingly, it is recommended that the monitoring system be expanded more slowly than the standard treatment protocols. Since no one plan will work in all four provinces because of differences in size, number of staff, etc., the decision to develop an implementation schedule for expansion of the monitoring system will be left up to each province. The general recommendation is to expand within a tehcil or district so that one motivated DHO or ADHO will be able to introduce the system into several centers, rather than having to train new ADHO's each time a new center is included.

INTRODUCTION OF MICROCOMPUTERS

There is considerable interest by both the MOH and USAID in the automation of the monitoring system through the introduction of microcomputers for entering, analyzing and reporting data. There are several questions to be considered in this regard:

- (1) The first question is whether to use computers at all. In my opinion, the answer is yes. We are now at a point where there is interest at the provincial and national level, and many of the senior decision-makers are sufficiently familiar with the technology to understand what they might expect from automation. We are talking about the analysis of large amounts of data and for the integration of several monitoring systems and both of these would be helped by the introduction of computer technology.
- (2) The second question is at what level to introduce the computers. There are several considerations in this regard. One, obviously, is cost. A second, is the problem of data entry. Many information systems are rendered useless by the requirement to enter vast arrays of data each month on a single machine, so the reporting falls further and further behind. A recommended approach in Pakistan would be to introduce one computer for each province at the level of the DHS with the exception of Punjab, which, because of its size would have computers in each Division at the level of the DD.
- (3) A third question is the type of software to use to collect the data. For the type of data that is being collected through the monitoring system, data base type programs are recommended. Alternatives such as spreadsheets (2 or 3 dimensional) or statistical packages are generally more cumbersome for this type of use. DBase III + (Ashton-Tate) is the industry standard and

the most widely available, and its versatility makes it very suitable for this type of use. In order to develop the appropriate data base structure and forms, it is recommended that USAID undertake this software development, and use it to analyze the monthly forms being collected from each test center. This should be done soon so that the results can be evaluated before the next system review. In order to expedite this process, a consultant already in Pakistan should be identified and used to develop the data base software.

- (4) The issue of training has been raised, since the training of staff in the use of computers is clearly a prerequisite for their use. My recommendation is to provide an in-country course giving hands-on training in the use of MIS, data bases, spreadsheets, and wordprocessing for those who will be actually using the computers. This would include both primary health care project staff and MOH staff at the provincial level. A second training course should be given for senior level managers in the concepts of MIS so that they will understand what and what not to expect from the system. This will be important in facilitating the introduction of the equipment and in the use of the information which is used.

APPENDIX I: REVISED IMPLEMENTATION SCHEDULE

IMPLEMENTATION PLAN - PRIMARY HEALTH CARE MONITORING SYSTEM

	1986			1987												1988									
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
SYSTEM DESIGN	XXX																								
APPROVAL - MOH	XXX																								
APPROVAL - PROVINCES:		XXX																							
SELECTION OF SITES		XXX																							
SOFTWARE DEVELOPMENT:													XXX												
STAFF TRAINING																									
AID			XXX																						
BHL/RHC, DHD				XXX	XXX								XXX	XXX	XXX										
POSTERS, FORMS				XXX	XXX																				
FIELD TRIAL 5-10 RHC:					XXX																				
SYSTEM REVIEW													XXX												
SYSTEM REVISIONS													XXX												
POSTERS, FORMS														XXX											
STAFF TRAINING																									
STD TREATMENTS TRHC:																									
MONITORING EXPANSION:													XXX	XXX	XXX										
SYSTEM REVIEW															XXX										
SYSTEM REVISIONS																									

APPENDIX 2: STANDARD TREATMENT PROTOCOLS FOR:

Diarrheal Diseases

Immunization Screening

Fever

Acute Respiratory Infections

Prolonged Cough

Nutrition

**STANDARD TREATMENT PROTOCOLS
FOR USE AT RHC'S AND BHU'S**

DIARRHEA TREATMENT PROTOCOL:

- EVALUATE CHILD FOR DEGREE OF DEHYDRATION
- TELL MOTHER TO CONTINUE TO BREAST FEED CHILD AND GIVE OTHER LIQUIDS AND FOODS
- TELL MOTHER THAT ORS WILL NOT STOP DIARRHEA
- FEED ORS AT THE FACILITY ACCORDING TO TABLE BELOW
- DO NOT GIVE OTHER ANTIDIARRHEAL DRUGS OR IV'S UNLESS SPECIFICALLY INDICATED
- TEACH MOTHERS HOW TO MIX ORS CORRECTLY AND WHEN TO GIVE IT TO THE CHILD
- GIVE MOTHERS ENOUGH ORS PACKETS TO TAKE HOME TO MEET ANTICIPATED NEEDS

ORS	UNDER 6 MOS.	6 - 12 MOS.	12 - 30 MOS.	30 MOS-5 YR	OVER 5 YEARS
MILD DEHYDRATION	1 CUP OR 200 ML OR 1/4 SEER IN FIRST 4 HRS	2 CUPS OR 400 ML OR 1/2 SEER IN FIRST 4 HRS	3 CUPS OR OR 600 ML OR 1/2 SEER IN FIRST 4 HRS	4 CUPS OR OR 750 ML OR 3/4 SEER IN FIRST 4 HRS	5 CUPS OR 1 LITER OR 1 SEER IN FIRST 4 HRS
MODERATE DEHYDRATION	2 CUPS OR 400 ML OR 1/2 SEER IN FIRST 4 HRS	4 CUPS OR OR 750 ML OR 3/4 SEER IN FIRST 4 HRS	5 CUPS OR 1 LITER OR 1 SEER IN FIRST 4 HRS	7 CUPS OR 1.5 LITER OR 1.5 SEER IN FIRST 4 HRS	10 CUPS OR 2 LITERS OR 2 SEER IN FIRST 4 HRS
SEVERE DEHYDRATION	400 ML RINGERS LACT INTRAVENOUS IN FIRST 4 HRS	750 ML RINGERS LACT INTRAVENOUS IN FIRST 4 HRS	1 LITER RINGERS LACT INTRAVENOUS IN FIRST 4 HRS	1.5 LITER RINGERS LACT INTRAVENOUS IN FIRST 4 HRS	2 LITERS RINGERS LACT INTRAVENOUS IN FIRST 4 HRS

1 cup = 200 cc

1 seer = 900 cc

STANDARD TREATMENT FOR FEVER, COUGH AND RESPIRATORY RATE > 50

Any Patient seen with fever, cough, and Respiratory Rate over 50 should:

1. Be evaluated for severity of illness:
2. Be treated according to TREATMENT PROTOCOL table below:
(If using Penicillin, do Penicillin Skin Test: 1 drop crystalline penicillin intradermally — if no severe reaction, test is negative)
3. Be told to return if still febrile after 48 hours
4. For severe wheezing- use bronchodilators

	MODERATELY ILL	SEVERELY ILL	VERY SEVERELY ILL
	NOT SEVERELY ILL MAY HAVE: -OTITIS MEDIA (draining or painful ear or bulging eardrum) -OTHER INFECTIONS	RESPIRATORY RATE >70 CHEST INDRAWING SEVERE WHEEZING DIPYRRIA CONVULSIONS SOMETIMES STOPS BREATHING	CYANOSIS RESPIRATORY DISTRESS CLINICALLY VERY ILL
9 - 12 months	PROCAINE PENICILLIN 400,000 UNITS DAILY FOR 5 DAYS - OR - TRIMETHOPRIM-SULFA 1/2 TSP (2.5ml) BD FOR FIVE DAYS and PARACETAMOL FOR FEVER	ADMIT TO INDOOR BED PROCAINE PENICILLIN 400,000 UNITS 12 HRLY FOR 5 DAYS - OR - TRIMETHOPRIM-SULFA 4 mg/kg BD X 5 DAYS PARACETAMOL FOR FEVER	ADMIT TO INDOOR BED CHLORAMPHENICOL 125 mg. 12 hourly OXYGEN IF AVAILABLE
1 - 4 years	PROCAINE PENICILLIN 400,000 UNITS DAILY FOR 5 DAYS - OR - TRIMETHOPRIM-SULFA 1 TSP (5ml) BD orally FOR FIVE DAYS and PARACETAMOL FOR FEVER	ADMIT TO INDOOR BED PROCAINE PENICILLIN 400,000 UNITS 12 HRLY FOR 5 DAYS - OR - TRIMETHOPRIM-SULFA 1 TSP(5ml) BD x 5 DAYS PARACETAMOL FOR FEVER	ADMIT TO INDOOR BED CHLORAMPHENICOL 250 mg. 8 hourly FOR FIVE DAYS and OXYGEN IF AVAILABLE
5 - 10 years	PROCAINE PENICILLIN 600,000 UNITS DAILY FOR 5 DAYS - OR - TRIMETHOPRIM-SULFA 400 mg BD orally FOR FIVE DAYS and PARACETAMOL FOR FEVER	ADMIT TO INDOOR BED PROCAINE PENICILLIN 600,000 UNITS 12 HRLY FOR 5 DAYS - OR - TRIMETHOPRIM-SULFA 400 mg. BD X 5 DAYS PARACETAMOL FOR FEVER	ADMIT TO INDOOR BED CHLORAMPHENICOL 250 mg. 6 hourly FOR FIVE DAYS and OXYGEN IF AVAILABLE
over 10 years	PROCAINE PENICILLIN 800,000 UNITS DAILY FOR 5 DAYS - OR - TRIMETHOPRIM-SULFA 400 mg BD orally FOR FIVE DAYS and PARACETAMOL FOR FEVER	ADMIT TO INDOOR BED PROCAINE PENICILLIN 800,000 UNITS 12 HRLY FOR 5 DAYS - OR - TRIMETHOPRIM-SULFA 250 mg BD X 5 DAYS PARACETAMOL FOR FEVER	ADMIT TO INDOOR BED CHLORAMPHENICOL 500 mg. 6 hourly FOR FIVE DAYS and OXYGEN IF AVAILABLE

NOTES: BD means twice per day (12 hourly)
TRIMETHOPRIM -SULFA SUSPENSION — 100 mg. Trimethoprim in 5 cc.
ALL TRIMETHOPRIM -SULFA IS GIVEN ORALLY
ALL PROCAINE PENICILLIN IS GIVEN INTRAMUSCULARLY

STANDARD TREATMENT FOR FEVER

Any person who is seen with fever should:

1. Have blood smear taken for malaria
2. Be given ORAL chloroquine FOR PRESUMPTIVE TREATMENT:

age:	1-11 months	12-24 months	3-4 years	5-6 years	7-14 years	>14 years
	C: 1/4 tab	C: 1/2 tab	C: 1 tab	C: 2 tabs	C: 3 tabs	C: 4 tabs

IF SLIDE IS POSITIVE FOR FALCIPARUM MALARIA:

age:	1-11 months	12-24 months	3-4 years	5-6 years	7-14 years	>14 years
DAY 1	C: 1/4 tab	C: 1/2 tab	C: 1 tab	C: 2 tabs	C: 3 tabs	C: 4 tabs
			P: 1/4 tab	P: 1/2 tab	P: 1 tab	P: 2 tab
DAY 2	C: 1/4 tab	C: 1/4 tab	C: 3/4 tab	C: 1 tab	C: 2 tabs	C: 3 tabs
			P: 1/4 tab	P: 1/2 tab	P: 1 tab	P: 2 tab
DAY 3	C: 1/4 tab	C: 1/4 tab	C: 3/4 tab	C: 1 tab	C: 2 tabs	C: 3 tabs
			P: 1/4 tab	P: 1/2 tab	P: 1 tab	P: 2 tab

IF SLIDE IS POSITIVE FOR VIVAX MALARIA:

age:	1-11 months	12-24 months	3-4 years	5-6 years	7-14 years	>14 years
DAY 1	C: 1/4 tab	C: 1/2 tab	C: 1 tab	C: 2 tabs	C: 3 tabs	C: 4 tabs
			P: 1/4 tab	P: 1/2 tab	P: 1 tab	P: 2 tab
DAY 2	C: 1/4 tab	C: 1/4 tab	C: 3/4 tab	C: 1 tab	C: 2 tabs	C: 3 tabs
			P: 1/4 tab	P: 1/2 tab	P: 1 tab	P: 2 tab
DAY 3	C: 1/4 tab	C: 1/4 tab	C: 3/4 tab	C: 1 tab	C: 2 tabs	C: 3 tabs
			P: 1/4 tab	P: 1/2 tab	P: 1 tab	P: 2 tab
DAY 4			P: 1/4 tab	P: 1/2 tab	P: 1 tab	P: 2 tab
DAY 5			P: 1/4 tab	P: 1/2 tab	P: 1 tab	P: 2 tab

P = PRIMAQUINE 7.5 mg. tablets C = CHLOROQUINE 200 mg. base

ORAL CHLOROQUINE SHOULD BE USED FOR ALL CASES OF FEVER. INJECTABLE CHLOROQUINE IS A DANGEROUS DRUG CAUSING SUDDEN CARDIAC DEATH IN SOME PATIENTS, ESPECIALLY CHILDREN. IT SHOULD BE USED ONLY WHEN PATIENT IS UNCONSCIOUS, HAS SUSPECTED CEREBRAL MALARIA, OR HAS SEVERE VOMITING.

PRIMAQUINE SHOULD NOT BE GIVEN TO PREGNANT WOMEN.

STANDARD TREATMENT FOR COUGH- LONG LASTING

FOR A COUGH LASTING MORE THAN 3 WEEKS:

All children under 10 years should be referred to the nearest diagnostic center

Adults and children 10 years or older should:

- o Be examined for signs and symptoms of tuberculosis
- o Have 3-4 slices of sputum prepared, fixed, properly marked on slide, and sent for analysis and detection to nearest RHC or microscopy center
- o With positive results, follow the recommended 3 drug treatment plan and question the patient about family members or close contacts with cough.

**STANDARD TREATMENT FOR COUGH - LONG LASTING
THREE DRUG TREATMENT PROGRAM FOR TUBERCULOSIS
(12 MONTHS TREATMENT)**

	10 - 15 YEARS	16 -45 YEARS	> 45 YEARS
Streptomycine (first 2 months only)	Inter muscular injections: Daily single dose 1/2g to 3/4g wt.: normal to heavy	Inter muscular injection: Daily single dose: 1g.	*
Isoniazide (12 months)	By mouth: Daily single dose 150mg to 300mg wt.: normal to heavy	By mouth: Daily single dose 300mg	By mouth: Daily 300mg to 450mg wt.: normal to >40Kg
Thioacetazone (12 months)	By mouth: Daily 75mg to 150mg wt.: normal to heavy	By mouth: Daily single dose 150mg	By mouth: Daily 150mg to 250mg wt.: normal to >40Kg
Ethambutol (12 months)	By mouth: Daily 75mg to 150mg wt.: normal to heavy	By mouth: Daily single dose 150mg	By mouth: daily single dose 1200mg

*Not given unless close attention and follow-up can be maintained.

- (1) Substitute if intolerant to Thioacetazone
- (2) Add if sputive slides show 3+ or more positive per level magnification.

IMMUNIZATION SCREENING

MEASLES, TETANUS, DIPHTHERIA, PERTUSSIS, POLIO, TB

All children under 2 years who came to the RHC or BHU for any reason or are seen in the outreach visits should be:

1. Screened for immunizations including measles
2. Be vaccinated if they are not fully immunized

All married women 15 - 45 years who come to the RHC or BHU for any reason or are seen in the outreach visits should:

1. Be screened for T.T.;
2. Be vaccinated if they had not had T.T.2.

NUTRITION

All women 15 - 45 years who came to the RHC or BHU for any reason or are seen in the outreach visits should be told to breast feed their children for two years and introduce appropriate foods when a child is 4 months old.

APPENDIX 3: REVISED MONITORING FORMS

WEEKLY CHECK LIST FOR RHC OR BHU
USER: DOCTOR IN CHARGE, RHC OR BHU

MONTHLY REPORTING FORM
USER: RHC SUPERVISOR (ADHO)

QUARTERLY REPORTING FORM
USER: DHO AND DHS

WEEKLY MONITORING FORM FOR RHC OR BHU
USFR: DOCTOR IN CHARGE, RHC OR BHU

ALL QUESTIONS SHOULD BE ANSWERED ABOUT THE ACTIVITIES THIS WEEK

1. Were there sufficient supplies to meet all needs of:

Procaine Penicillin	Yes []	No []
Trimethaprim- sulfa	Yes []	No []
Oral Chloroquine	Yes []	No []
ORS	Yes []	No []
INH, Streptomycin, rifampicin	Yes []	No []
All Vaccines and Diluents	Yes []	No []

2. Were all Children with diarrheas treated according to ORT protocol including teaching all mothers to mix ORS and continue Breast Feeding and other foods? Yes [] No []

3. Were all children under 2 years who came to the RHC or BHU for any reason or were seen in the outreach visits screened for EPI and vaccinated if they were not fully immunized? Yes [] No []

4. Were all married women 15 - 45 years who came to the RHC or BHU for any reason or were seen in the outreach visits screened for TT and vaccinated if they had not had TT 2 ? Yes [] No []

5. Was the refrigerator checked on a daily basis, all temperatures recorded, and in the safe range 0-8°C ? Yes [] No []

6. Was every person seen at the RHC or BHU with fever treated with chloroquine at the correct dose? Yes [] No []

7. Was every person seen at the RHC or BHU with fever, cough, and Resp. rate over 30 treated according to the protocol? Yes [] No []

8. Was every person seen at the RHC or BHU with cough lasting more than three weeks screened for Tuberculosis? Yes [] No []

9. Were all women 15 - 45 years who came to the RHC or BHU for any reason or were seen in the outreach visits taught about Breast Feeding and infant feeding? Yes [] No []

10. Were there any preventable deaths occurring at the RHC, BHU, or in the surrounding villages? Yes [] No []

11. Were all scheduled outreach sessions held? Yes [] No []

WHAT ARE THE PROBLEMS TO BE DISCUSSED THIS WEEK?

HOW CAN THESE PROBLEMS BE OVERCOME?

Signature of Doctor In Charge

Date

MONTHLY REPORTING FORM

USER: RHC SUPERVISOR (ADHO)

1. How many people (including children) came to the RHC or BHU this month for any reason? _____

2. How many children under 2 years came to the RHC or BHU this month for any reason? _____

How many children under 2 years were seen this month in the outreach visits? _____

3. How many women 15 - 45 years came to the RHC or BHU this month for any reason? _____

How many women 15 - 45 years were seen in the outreach visits this month? _____

4.	HOW MANY CHILDREN 0-5 YR SEEN THIS MONTH WITH DIARRHEA	HOW MANY CHILDREN WERE TREATED WITH DIARRHEA PROTOCOL	HOW MANY CHILDREN RECEIVED OTHER TREATMENTS
NUMBER WITH MILD DEHYDRATION			
NUMBER WITH MODERATE DEHYDRATION			
NUMBER WITH SEVERE DEHYDRATION			

5. What is your monthly target for vaccinating children under one year? _____

Population x 3.66/12 = Monthly target)

6. How many children under one year received: THIS MONTH ?

DPT1

DPT2

Measles

THIS YEAR ?

7. How many children under 2 years
Were screened for immunizations?
Were vaccinated for measles? _____

8. How many married women 15 - 45 years
Were screened for TT?
Were given TT 2? _____

9. How many people seen at the RHC or BHU
Had fever?
Had blood slides taken for Malaria parasites?
Had fever and were treated with oral chloroquine at the correct dose?
Had blood slides which were positive for malaria? _____

10 How many people seen at the RHC or EHU
 Had fever, cough, and Resp. rate over 50? _____
 Had fever, cough, and Resp. rate over 50 and were treated with
 penicillin or trimethoprim-sulfa at the correct dose? _____

11 How many people seen at the RHC or EHU
 Had cough lasting more than three weeks? _____
 Had cough lasting more than three weeks were screened for
 Tuberculosis? _____
 What percentage of ALL your TB patients received treatment this
 month? _____

12. How many women 15-45 years were taught about Breast Feeding and
 infant feeding this month? _____

13. SUPPLIES

	HOW MANY DOSES USED THIS MONTH	WHAT IS THE STOCK ON HAND NOW	IS STOCK ADEQUATE FOR NEXT 1 MONTH	IS STOCK ADEQUATE FOR NEXT 3 MONTHS
PROCAINE				
PENICILLIN				
TRIMETH-SULFA				
CHLOROQUINE				
PRIMAQUINE				
ORS				
INH				
STREPTOMYCIN				
THIACETAZONE				
DPT VACC.				
POLIO VACC.				
MEASLES V. ACC				
TET. TOX. VACC				

WHAT ARE THE PROBLEMS AT THE RHC OR EHU THIS MONTH?

HOW WILL THESE PROBLEMS BE OVERCOME?

 Signature of Supervisor

 Date

 Signature of MD at RHC or EHU

 Date

QUARTERLY MONITORING FORM

USER: DHO AND DO

1. What is the total number of patients in all facilities seen this month in the District? _____

What is the average number of patients seen daily in each RHC this quarter? _____

What is the average number of patients seen daily in each BHU this quarter? _____

What is the average number of women and children per health facility per week seen through outreach activities?

(Total women and children seen / number of facilities / 13) _____

2. What percentage of patients seen in BHU or RHC are 0-2 years? _____

What percentage of patients seen in BHU or RHC are women 15 - 45 years? _____

3. How many children under 5 years were seen in the district this quarter with diarrhea? _____

What percentage of these children were treated correctly? _____

What percentage of these children were severely dehydrated? _____

4. How many under-ones should be vaccinated quarterly? _____
(Population x 3.66 / 4 = Quarterly target)

What percentage of under-ones received	THIS QUARTER ?	THIS YEAR ?
DPT1	_____	_____
DPT3	_____	_____
Measles	_____	_____

5. What percentage of children under 2 who came to a BHU or RHC were screened for immunizations? _____

6. How many women should be vaccinated with TT this quarter? _____

What percentage of the target for TT was achieved this quarter? _____

7. How many people were seen at a RHC or BHU with fever? _____

What percentage of these patients were treated correctly? _____

8. How many patients were seen at a RHC or BHU with fever, cough, and respiratory rate over 50? _____

What percentage of these patients were treated correctly? _____

9. How many patients were seen at a RHC or BHU with cough lasting more than 3 weeks? _____

What percentage of these patients were treated correctly? _____

10 What percentage of women 15-45 years seen were taught about Breast Feeding and infant feeding this month? _____

11 How many RHC's or BHU's at any time in the quarter ran out of:

- | | | | |
|--------------------|-------|-------------------|-------|
| PENICILLIN | _____ | THIACETAZONE | _____ |
| TRIMETHAPRIM-SULFA | _____ | DPT VACCINE | _____ |
| CHLOROQUINE | _____ | POLIO VACCINE | _____ |
| PRIMAQUINE | _____ | MEASLES VACCINE | _____ |
| QHS | _____ | BOG VACCINE | _____ |
| INH | _____ | TET. TOX. VACCINE | _____ |
| STREPTOMYCIN | _____ | | |

WHAT ARE THE BIGGEST PROBLEMS YOU FACE IN THE DISTRICT THIS QUARTER?

HOW WILL THESE PROBLEMS BE OVERCOME?

WHAT HELP IS NEEDED FROM THE DD OR DHS TO SOLVE THESE PROBLEMS?

Signature of DHO

Date

Signature of DD or DHS

Date

APPENDIX 4: Agenda and discussion of DHS's Meeting 9/22/87

MEETING OF DIRECTORS OF HEALTH SERVICES

sponsored by
National Basic Health Services Cell

September 22, 1987

AGENDA

Review of Monitoring Protocols

1. Reading from Holy Koran
2. Welcome Address - Dr. Zafar
3. Progress to date and general comments - Dr. Mitchell
4. Comments by Provincial Directors of Health Services
5. Standard Treatment Protocols (page 2) - Dr. Mitchell
Discussions with DHS's
6. Monitoring System (page 3) - Dr. Mitchell
Discussions with DHS's
7. Implementation Programme (page 4) - Dr. Mitchell
Discussions with DHS's
8. Closing Remarks - Dr. Zafar
9. Luncheon - 1:30 - With Prof. A.J Khan, Director-General Health, GOP

LIST OF PARTICIPANTS

Dr. Zafar Ahmad, DDG, Basic Health Services Cell
Dr Iqbal Khan, DHS, Baluchistan
Dr. Sindhar Ali, DHS, NWFP
Dr. Sajan Memon, DHS, Sind
Dr. Bux Memon, Project Director, Sind
Dr. Nisar, Project Director, NWFP
Dr. M.A.Sheikh, Project Director, Punjab
Mr. Sitar, Health Education Advisor, BHS Cell, GOP
Dr. Bhatti, Child Survival Advisor, HPN, USAID
Mr. Raymond S. Martin, Chief, HPN
Dr. Heather Goldman, PHC project manager, HPN
Mr. Richard Osanski, PHC Management Specialist
Dr. Tara Upreti, Training Coordinator, PHC project
Dr. Marc Mitchell, consultant, Management Sciences for Health

*** 5: Standard Treatment Protocols**

**Diarrheal Diseases
Immunization Screening
Fever
Acute Respiratory Infections
Prolonged Cough
Nutrition**

Progress to date and general Comments:

- used in 13 RHC's (total) in all provinces for 1-5 months
- use of protocols well received by most doctors
- all protocols consistent with national programs
(EPI, CDD, MALARIA, TB, WFP)

Recommendations:

General

- better explanations of protocols to doctors

Immunizations

- Tetanus Toxoid: all married women 15-45

Diarrheal Disease

- emphasize not using antidiarrheals

Fever (Malaria)

- emphasize need to treat all cases of fever with chloroquine
- use oral chloroquine unless patient is unconscious or has severe vomiting
- if microscopist is not available, give 3 day course of treatment

Acute Respiratory Infections

- simplify explanations
- change doses of penicillin: maximum dose (adult) 800,000 units
- give alternate drugs, if needed
- include ear infections, etc.
- do not discuss supportive therapy

Prolonged Cough (TB)

- follow national protocol (3 drug therapy) exactly

• 6: Monitoring System

Progress to date and general Comments:

Weekly Form
Monthly Form
Quarterly Form

Recommended Changes:

WEEKLY FORM:

- 1: Procaine Penicillin
Chloroquine Tablets, primaquine
INH, Streptomycin, and Thiacetazone

MONTHLY FORM

- 5: (Population x 3.66 / 12 = monthly target)
- 13: Procaine Penicillin
Chloroquine Tablets, primaquine
INH, Streptomycin, and Thiacetazone

QUARTERLY FORM

- to be reviewed to ensure consistency with National Monitoring System being developed.
- trial for additional 6 months before finalizing

• 7: Recommended Implementation Programme

STANDARD TREATMENT PROTOCOLS

Available for use in ALL RHC's and BHC's according to wishes of DHS

Posters with protocols made available for all centers participating by Basic Health Services Cell

Training in use of protocols to be included in Medical Officer Training courses given by Basic Health Services Cell

MONITORING SYSTEM

Use of weekly and monthly monitoring forms to be expanded slowly

Monitoring forms used in other centers where DHO and ADHO already have experience with system

Computerization of information at Provincial level

Discussions with DG about national monitoring system

PROVISION OF DRUG SUPPLIES

Recommended directive from DHS to all DD, DHO to make available to all RHC's and BHC's sufficient supplies of

Procaine Penicillin

Chloroquine Tablets, Primaquine

INH, Streptomycin, and Thiacetazone

SYSTEM TO BE REVIEWED AGAIN IN 6 MONTHS BEFORE FINAL IMPLEMENTATIO

PERSONS CONTACTED

USAID MISSION TO PAKISTAN

Mr. Raymond S. Martin, Chief, HPN
Dr. Heather Goldman, PHC Project Manager, HPN
Dr. William Chin, Malaria Advisor, HPN
Dr. Bhatti, Child Survival Advisor, HPN
Mr. William Deichler, Child Survival Project Coordinator, HPN
Mr. Ahmed Nasim, Administrative Advisor, HPN
Ms. Lucia Tabor, PRITECH Advisor
Mr. Chris Olsen, MSH Consultant on Logistics

USAID PHC PROJECT STAFF

Mr. Richard Osmanski, PHC Management Specialist
Dr. Tara Upreti, Training Coordinator, PHC project
Ms. Tasleen Paracha, Training Specialist, Baluchistan
Mr. Muhammed Saghir, Management Analyst, Baluchistan
Mr. Zafar Shah, Management Analyst, Punjab
Mr. Arshad Mahmood, Management Analyst, Punjab
Mr. Zamin Gul, Management Analyst, NWFP
Dr. Arshraf Memon, Management Analyst, Sind
Mr. Ajaz Sheik, Management Analyst, Sind
Ms. Rodina Yasmin, Training Specialist, Punjab
Ms. Masooda Ethram, Training Specialist, Punjab
Ms. Mahmooda Nasreen, Training Specialist, Punjab

GOVERNMENT OF PAKISTAN FEDERAL MINISTRY OF HEALTH

Prof. A J Khan, Director General Health, GOP
Dr. Zafar Ahmad, DDG, Basic Health Services Cell
Dr. Shamsul Ateeen, Director, TB control
Dr. M. Husain Khan, Med. Sup., National TB Hosp. Rawalpindi
Dr. Shaw, Director, National Malaria Program
Dr. Mushtaq Khan, Professor of Pediatrics, Ist Childrens Hosp
Col. Akhram, Director of National EPI Program, NIH

PROVINCIAL HEALTH SERVICES

Dr. Iqbal Khan, DHS, Baluchistan
Dr. Sindhar Ali, DHS, NWFP
Dr. Sajan Memon, DHS, Sind
Dr. Iqbal Memon, Project Director, Sind
Dr. Nisar, Project Director, NWFP
Dr. MA Sheikh, Project Director, Punjab
Dr. Maj. Mohammed Latif, DHO, Rawalpindi, Punjab
Dr. Hafiz Mahmood, MS, Nishtar Hospital, Multan, Punjab
Dr. Riaz Ahmad, DMS, Nishtar Hospital, Multan, Punjab
Dr. Tariq Bhutta, Pediatrician, Nishtar Hospital, Multan, Punjab
Dr. Abdul Ghaffar, DHO, Muzaffar Garh, Punjab

RHC STAFF:

Dr. Imtaz Dar, MOIC, Sohawa RHC, Punjab
Dr. Naseer Ahmad, MO, Sohawa RHC, Punjab
Dr. MM Soliman, MOIC, RHC Bagga Shaikhan, Punjab
Dr. Abrar Ahmed, MO, RHC Bagga Shaikhan, Punjab
Dr. Rubina Ashraf, FMO, RHC Bagga Shaikhan, Punjab
Dr. Mohammed Arshad, MOIC, RHC Khairabad, NWFP
Mr. Mohammed Akbar, MT, RHC Khairabad, NWFP
Dr. Zakir Ullah, MOIC, RHC Jamalabad, NWFP
Dr. Humayun Zaman, MO, RHC Jamalabad, NWFP
Dr. Nasir Shah, MO, RHC Jamalabad, NWFP
Dr. Abdul Sattar Shahid, MOIC, RHC Minwali Querreshian, Punjab
Dr. Babib-ur Rehman, MO, RHC Uch Sarif, Punjab
Dr. Zulfiquar Ali Rehmani, MOIC, RHC Uch Sarif, Punjab
Dr. Zulfiquar, MOIC, RHC Shehr Sultan, Punjab
Dr. Mushtaq, MO, RHC Shehr Sultan, Punjab
Dr. Ijaz Ahmad Langhial, MO, RHC Shehr Sultan, Punjab
Mr. Abdul Sattar Baddar, MT, RHC Uch Sarif, Punjab