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PUNJAB TASK ALLOCATION STUDY

1989

by

PRICOR - PAKISTAN



PUNJAB TASK ALLOCATION STUDY

PREPARED FOR THE GOVERNMENT OF THE PUNJAB

BY

PRICOR PAKISTAN

19 September 1989

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3. Dr. Mrs. Saeeda Rashid, Associate Professor

W.H.O.

1. Mr. Ismatullah Chaudhry, Operations Officer

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1. Mr. Shamshad Qureshi, Programme Officer

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Director PRICOR Pakistan

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Technical Representative
PRICOR Punjab

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BACKGROUND

This study arose from twin concerns of the Government of the Punjab about the utilization level of primary care rural health facilities and the effectiveness of primary care outreach workers. These concerns were articulated in discussions with provincial health officials held in mid-1988 and restated in a workshop held in Islamabad in March 1989 (Annexure A). It was felt that with comprehensive and systematic information on primary health care facilities and outreach activities changes might be introduced in both that would increase their effectiveness.

The Government of the Punjab has attempted to extend and improve health care for rural populations through primary care facilities and re-organization of health care outreach. The majority of the primary care facilities are of two types:

Rural Health Centers (RHCs). These facilities are most often found near small towns and have limited in-patient facilities. The staff is composed of one or more physicians (Medical Officers, MOs), one or more female health workers (Lady Health Visitors, LHVs, or Female Medical Technicians, FMTs), one or more paramedical personnel (Medical Technicians, MT, or Health Technicians, HT), a Dispenser who manages the pharmacy, a Microscopist for the laboratory, and support clerical and servant staff. An RHC may be "integrated" which means it is linked in a loose fashion to several lower level health facilities called Basic Health Units.

Basic Health Units (BHUs). The BHU is similar to the RHCs but lacking in-patient facilities and with fewer staff. This unit typically serves 3-4 villages and is intended as the government facility of first recourse for most health problems that arise in rural areas.

Health outreach services have traditionally been provided by three individuals in each union council, a Vaccinator, a Communicable Disease Control Supervisor (CDCS), and a Sanitary Inspector. Few Sanitary Inspectors are operating in the field and the focus of attention was on the Vaccinator and CDCS. The Government of the Punjab has combined the duties of the Vaccinator and CDCS, renaming them Multi-Purpose Health Workers (MPHW) in an effort to increase the coverage provided and the effectiveness of the two individuals. It was hoped that an MPHWP could not only provide a full range of outreach services in the absence of one of the team members, but also that the compartment-alization of health care could be broken down and replaced by a broad based approach to community health problems.

EXECUTIVE SUMMARY

The study reported here was undertaken at the request of the Government of the Punjab to examine two issues: the relative underutilization of rural primary health care facilities and the effectiveness of the Multi-Purpose Health Workers (MPHWs). Data were collected through systematic observation of health care activities in Basic Health Units (BHUs), Rural Health Centers (RHCs), and communities located near health care facilities. Interviews were conducted of villagers living near the facilities studied and of patients as they departed from the facilities.

Although only three health areas were studied, malaria, diarrhoea management, and vaccinations, the findings are extensive and no summary can do justice to them. With that caveat stated:

Facility Utilization: Half of the surveyed population use a government facility, predominantly a BHU. Those who go to BHUs for health care are generally satisfied with the service received. Half of the reasons given for not using BHUs (by those respondents who do not) could be addressed with current resources (e.g., staff absenteeism, suspect quality of care, etc.).

Health Knowledge: Villagers were fairly well informed on the purpose of vaccination and how to obtain vaccinations. They also used replacement therapy for diarrhoea and knew how to prepare the solution. They were least informed on malaria management.

Malaria Care in BHU/RHC: This was the weakest of the three areas studied. Patients presenting with fever were asked about the duration and pattern of fever; however, the examination was cursory (the temperature was taken and a blood slide was made for less than half) and very little counselling was performed.

Diarrhoea Management in BHU/RHC: Clinic management of these cases was fairly complete with the exception that the degree of dehydration was not assessed. Counsellors failed to inform mothers of signs that the child was becoming dehydrated or his condition was worsening. Very few clients were given only ORS; nearly all were given ORS with an antidiarrhoeal or antibacterial.

Vaccination in BHU/RHC: The technical aspects of vaccinations were well handled except that sometimes unsterile needles were used. Mothers were not usually warned that the injection might produce a fever or to leave the BCG scab alone.

Outreach Team: Eighty percent of the respondents had been visited by a health worker at some point in the past, almost half of them in the past month. MPHWS tended to emphasize vaccination and neglect TB, malaria, and diarrhoea. If, however, a case of diarrhoea or fever was encountered, the MPHWS followed up well.

Supervision: Supervisors were proactive and visited homes with MPHWS. Again there was a slight tilt toward vaccination and a pronounced one toward supervision of record keeping and paperwork. There were few associations between the observed inputs of field supervisors and the performance of MPHWS; this may be because supervision is so infrequent. The two exceptions were in the area of malaria. It was found that a MPHWS was more likely to do a good job in malaria management if the supervisor discussed specific cases with him. Second, the more attention the supervisor gave to malaria during the supervisory visit, the better the MPHWS performed.

High-low Comparisons: An extensive number of possibilities were examined to explain the relative popularity of some facilities over others. Among the hypotheses that failed to account for the different appeal of BHUs were client satisfaction (clients of better attended BHUs were not more satisfied with the service than were the clients of less well attended BHUs), quality of diarrhoea care, quality of malaria care, and the effectiveness of counselling in all areas. The single set of indicators that consistently differentiated high from low performing BHUs was the quality of the services provided by MPHWS working in the immediate area. If this is a valid finding it suggests that facility utilization may be increased through better management and closer supervision of outreach personnel.

The findings were reviewed by senior officials of the Health Department, Government of Punjab in two workshops (Annexure B & C) and a large number of activities were identified for improvement.

OBJECTIVES

Due to the passage of time and the rotation of senior officials, the objectives at the time field research was begun, June 1989, differed slightly from those first stated in mid-1988. As often happens, the principal change was to broaden the definition of the basic research questions; this was offset by a reduction in the scope of the health areas to be surveyed in order to hold the study within manageable limits.

At the time the field work began, the objectives of the research were the following:

1. To document how Diarrhoea, Malaria and Vaccination services are currently being delivered at BHUs, RHCs and in the Community through MPHWs.
2. To identify some factors that affect facility utilization.
3. To describe local needs for Health Care and Health Education.

It should be noted that these do not represent major revisions of the original objectives, rather amplifications.

Worth remarking on, since these issues were not stated this succinctly at the outset, were the questions raised by operating officials, Divisional Directors and District Health Officers. Their concerns could be summarized in three questions:

1. What health problems do the people in my area have?
2. What do they do about or where do they go with those problems?
3. And if they do not come to Government facilities, why not?

While these questions are central to the facility utilization concern expressed at other levels, they express that concern in concrete and pragmatic terms and influenced the content of the research instruments.

REPORT ORGANIZATION

This report focusses primarily on the results obtained from the systems analysis. The principal medium for presenting those results is a series of charts. Frequencies and percentages are usually omitted from the presentation as they might suggest a greater degree of precision than is warranted given the sampling approach and sample sizes. Readers are directed to compare orders of magnitude rather than focus on numerical results; similarly, and as in most research, patterns of consistent results are more persuasive than single findings. Readers interested in the percentages may find those in the Attachments where the distribution of answers for each observation and questionnaire item is presented.

Order of presentation. The methodology is described in some detail as it is still novel in the health field and easily misunderstood when traditional social science research methods are used as a standard. This is followed by a presentation of the results. The reaction of senior health officials in the Punjab to the results is reported as it indicates priorities and future actions that may be taken. Finally, supporting information such as specific results and research instruments is contained in the Attachments.

METHODOLOGY

PRICOR systems analysis data collection is unique in two regards. First, it relies heavily upon systematic observation of minute details of health care provision. Second, that observation is guided by fixed criteria for what is "good" health care. The premises upon which the methodology rests are open to argument; for example it is reactive or there may not be universal agreement on what constitutes "good" medical care; however, the approach does provide health program managers with detailed and fairly comprehensive information on what is and what is not being done by health providers.

To illustrate the methodology: A qualified clinician will observe the health provider for one or more days as he or she treats patients. The observer will check whether each of a pre-determined set of activities is performed or not for eight primary health care areas. Within each area there is a list of prescribed activities for history taking, examination, treatment, and counseling. This information is buttressed by interviews with departing patients to determine what they understood and recalled of the care and instructions they received.

Interviews are also conducted within the community to determine levels of health knowledge; these interviews may also serve to corroborate the research observations made in the clinic to gauge whether those findings are generally representative. It may however be noted that the knowledge of the exiting patient could be much more than what he or she was told in the BHU/RHC. This according to the senior health officials is probably because of cumulative effect of previous health messages conveyed to them.

The methodology employed in the Punjab is described below.

Data Collection

The data were collected during the second and third weeks of June in three districts of the Punjab: Sheikhpura, Sargodha, and Jhelum. In each district eight BHUs, one IRHC (Integrated Rural Health Complex) and one RHC were visited for two days each. A group of DPH (Diploma in Public Health) students conducted the interviews and observations in the clinics and another group accompanied the MPHWS and field supervisors as they went to villages around the clinic. These students were concluding a mid-career program to prepare them for positions of greater responsibility in the government health program; all of them (28) were physicians and most had worked in the types of health units they were asked to study. Twelve Female Health Workers (10 Female Medical Technicians from the Basic Health Services Cell and 2 Microscopists) conducted interviews in households in villages near the BHU/RHC.

All of the researchers were trained for two days prior to going to the field. On the first day Female Health Workers were given lecture on field methods and data collection instrument i.e. (Household Interview Performa) was discussed. They then went out in the field (localities near Lahore) and filled the performas. These were reviewed in the evening. Some minor modifications were made and the performa was tested in the field the following day again. No more modifications were found necessary; however some retraining was conducted with respect to branching instructions in the performa.

One full day was devoted to the thorough discussion of Observation/Exit Interviews performa with the DPH students, and due stress was laid on the importance of accuracy in recording the data. The performas were field tested the next day. No modifications were found to be necessary. In the evening DPH students undertook a role play exercise under the supervision of PRICOR staff. The pre-test generated approximately 100 completed questionnaires. These were discarded and not used in the final tabulations.

Continuous field supervision during data collection was provided by three research directors from the staff of PRICOR/Pakistan. Their work was overseen by a consultant from PRICOR/USA.

Sampling

The research sites were selected as follows:

BHUs. In that one of the research questions was to identify factors that affected facility utilization, it was decided to compare facilities that were more popular with those that appeared to be less popular. To assign facilities to the high and low group, data were obtained from District Health Offices on the following: average monthly visits to the BHU, total population served by the BHU, ORS packets distributed in the union council served by the BHU, number of malaria slides made in the union council, and number of vaccinations registered. From these data lists were constructed that ranked the BHUs in each district from most active to least active. There appeared to be a high degree of correlation among the three performance indicators but a statistical measure of association was not computed. Ultimately it was decided that the most appropriate indicator was monthly visits divided by population in the service area as this was the area of performance most directly under control of the BHU staff. The activities of the outreach workers who perform the majority of the vaccinations and collect some slides and distribute ORS packets

is not supervised by the BHU. The final selection of study sites was made from the BHUs that were in the top and bottom 20% of all BHUs in each district. The District Health Officers (DHOs) assisted in this by identifying high and low performers that were regionally dispersed from one another and did not suffer from any peculiar circumstances that would make them especially unrepresentative (such as notable lack of staff, recent initiation of service, or proximity to a major hospital). As a check on the accuracy of the service statistics provided by the District Health Offices, the researchers recorded the number of daily consultations for the preceding three months as reported in the clinic register and counted the number of clients that visited the BHU during the observation period. In all 24 BHUs the service statistics, clinic register, and daily observations were consistent; the assignment of BHUs into high and low activity categories seemed valid. This is not to say, however, that there was a wide margin in the performance of the high and low activity BHUs. A low activity BHU would typically receive 10 to 12 patients in a day and a high activity BHU would receive 15 to 18.

The field researchers were not told of the comparative nature of the study and were unaware of whether they were observing a high or low performing facility.

RHCs. This was a much simpler process because there were so few RHCs from which to choose. One RHC was selected that was "integrated" with a BHU in the sample and a second, non-integrated, RHC was selected that was geographically distant from the first. There was rarely much choice in these matters.

Households for interview were selected largely in accordance with the EPI sampling methodology. Interviewers were dropped in the localities which were approximately at the distances of less than 30 minutes walk, more than 30 minutes but less than one hour walk and more than one hour walk from the BHUs/RHCs. Each interviewer started in a direction selected by chance (frequently a stick was spun in the street) and interviewed at every fifth household until completing fourteen interviews. Interviews were conducted in over 80 villages in the three districts. The three-way division of distances sometimes broke down when a cluster of houses at the desired distance from the BHU/RHC did not exist; as a result there is not an equal distribution of interviews from the three distance groups. Out of 1313 House Hold Interviews conducted, 157 were conducted in the limits of Municipal/Town Committees (because of RHCs) while 1156 were conducted in the Union Councils.

Instruments

The data collection instruments were drawn directly, and with a minimum of modification, from the PRICOR Thesaurus. The observation forms were printed in English. The interview forms were translated into Punjabi. Punjabi script is not commonly used so the Punjabi questionnaires were printed using Urdu script; the surveyers reported no difficulty with this arrangement. The English version of all of the forms used is found in the Attachments. They have been modified slightly for this report as the results have been incorporated into them and branching instructions have been deleted.

Schedule

Each research site was visited for two days. Observation and Exit Interview at BHU/RHC and field observation of MPHWs and supervisors were conducted continuously during the two day period. During one of the two days the household survey was conducted in proximate villages. The researchers were in the field from 10 through 20 June 1989.

FINDINGS

COMMUNITY HEALTH STATUS

Interviews were conducted with 1313 women in over 80 villages in the three districts. Each interview consisted of 52 questions and took, on average, 15 minutes to complete. These interviews provide the primary source of data on health problems in the rural communities.

The following charts illustrate the most recent disease reported in the community.

- o Nearly half of the households reported fever/malaria or diarrhoea as the most recent illness they could recall. No time limit was placed on the period of recall (Chart No.1).
- o The low showing for acute respiratory infections may be due to the time of year the survey was conducted, early summer, and that date may also account for the high level of fever/malaria (Chart No.1).
- o "Other" diseases included a sprinkling of illnesses with clinically recognized labels such as hypertension, helminths, polio, etc. (see Attachment B for a breakdown) but inspection of the written entries produced a high incidence of illnesses described as "weakness" or simply "sick" (Chart No.1).
- o The duration of the most recent reported illnesses revealed a roughly bi-modal pattern, short -- two to five days -- acute illnesses, and long term or chronic illnesses lasting a month or more (99 days on the chart represents any disease reported as lasting 99 days or longer). The vertical axis represents the number of households reporting a disease of that duration (Chart No.2).
- o In 60% of household someone sick last time was under 5 years.
- o In 4% of the house hold someone sick last time had one of the six currently preventable disease, under EPI.

**MOST RECENT DISEASE, REPORTED IN
HOUSEHOLD SURVEY**

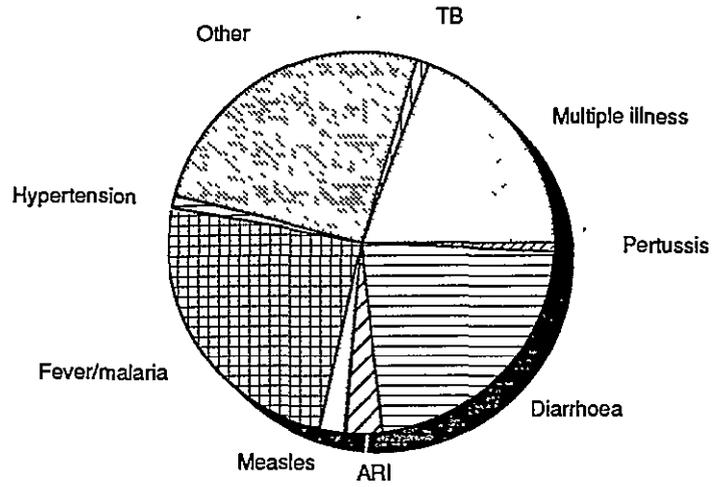


CHART NO. 1

DURATION OF REPORTED DISEASES

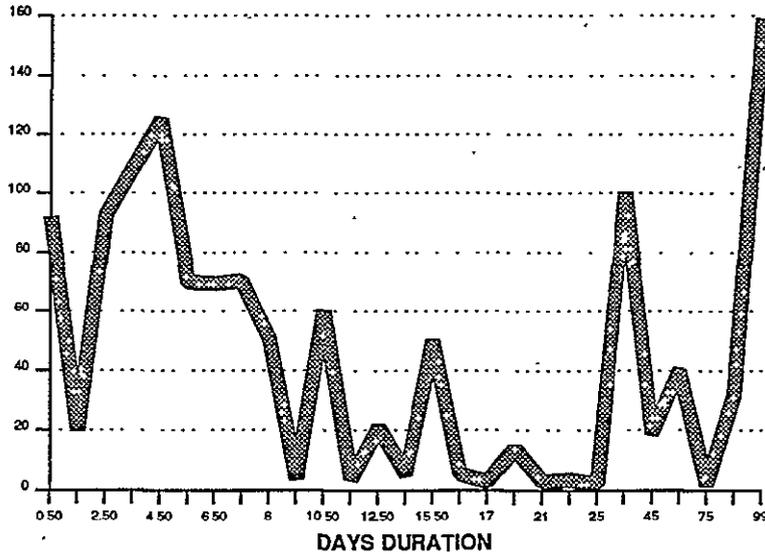


CHART NO. 2

HEALTH EDUCATION

Respondents in the household survey were asked to demonstrate their knowledge in three health areas, diarrhoea management, malaria recognition and treatment, and vaccination. The results have been brought together on a single chart (Chart No.3).

- o Diarrhoea management knowledge appears to be fairly complete. When asked what they would do for a child with diarrhoea,
 - four-fifths of the respondents replied that they would give oral rehydration solution (ORS),
 - two-thirds correctly described how to prepare it,
 - three-fourth knew how often ORS was to be administered,
 - three-fourths answered correctly that they should continue feeding a child with diarrhoea, and
 - half said they would take the child immediately for medical attention.
- o It would appear that the least is known about malaria; half of the respondents could not mention a single symptom, including fever, that they associated with malaria (Chart 4). This finding raises the possibility that the clinical term is not widely known; however, this possibility was not raised by field personnel during the research.
- o Less than half knew that they should complete the full course of chloroquine tablets after the fever subsides.
- o Two-thirds thought there were no preventive measures that could be taken against the disease (such as spraying, screens, chemoprophylaxis).
- o The only low area in the responses on vaccination was that few respondents in the houses with children under five (1097 households) knew that vaccinations could begin shortly after birth.
- o Three-fourths of the respondents in the houses with children under five knew where to obtain vaccinations and well over half could name one or more immunizable diseases.
- o Cards were also examined in the household survey.
 - Approximately one-fifth of the cards examined revealed that the child was overdue for vaccination.
 - When the mother was asked why the child was overdue, half of the answers reflected lack of motivation (too busy, difficult to get there) and one-fifth provided answers that call for an educational efforts to change (makes child sick, thinks child protected) (Chart No.23).

HEALTH EDUCATION LEVEL, COMM. SURVEY

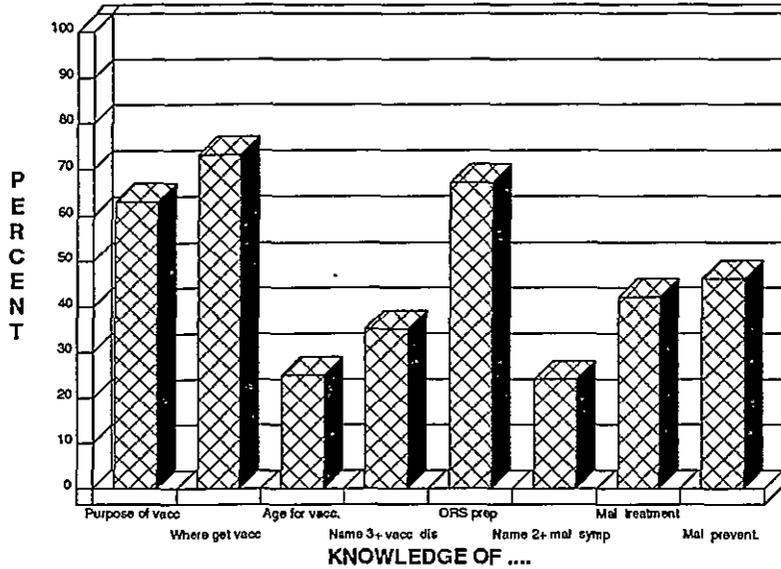


CHART NO. 3

NOTE:- Malaria questions were asked of all 1313 Households.
 - ORS & Vaccination questions were asked of 1097 Households with children under 5 years age.

KNOWLEDGE OF MALARIA SYMPTOMS, COMMUNITY SURVEY

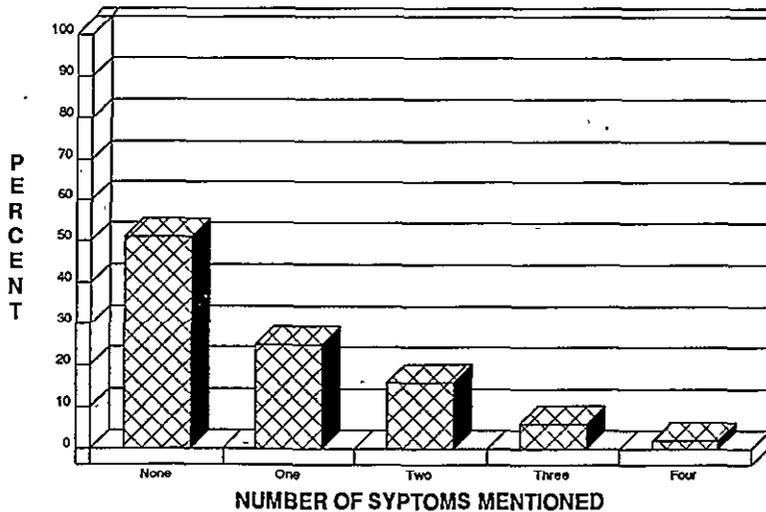


CHART NO. 4

SOURCES OF HEALTH CARE

As the following charts illustrate, consistent preferences for sources of health care were expressed by the respondents in the household survey. The clear favorite, whether for the most recent illness, an undefined illness requiring medical attention, or for malaria, was a government facility (Chart No. 5). This was most often the BHU/RHC; government hospitals/dispensaries were mentioned as the point of first recourse in one out of ten houses.

- o Private "doctors" (the qualifications of the private practitioners used by the villagers were not ascertained) were used by one-fourth to one-third of the respondents.
- o In general, approximately one-half of the respondents turn to publically supported facilities for care (Chart No. 6); this is well up from the 17% utilization found in a survey conducted in the early '70s.
- o For malaria it was interesting to note that almost none of the respondents thought of the CDCS or MPHWS as a source of treatment although they are trained and prepared to initiate presumptive treatment and take blood samples to confirm a malaria diagnosis (Chart No. 7).
- o A large number of respondents said they did not use the BHU/RHC for any health problem. When asked why not, they cited lack of supplies and distance to the BHU/RHC as the primary reasons. Roughly half of these respondents provided reasons for not using a BHU/RHC that might be addressed or corrected with existing resources; these included staff absenteeism, failure to observe the posted schedule, and a perception that the BHU/RHC staff is unable to cure their diseases (Chart No. 8).

Numerous complaints had been voiced about over-charging in the BHUs/RHCs. The authorized fee is Rs1.00 per visit and if extensive medicines are required health managers acknowledged that a slight additional fee might be requested of patients who are able to afford it. The survey did not support the allegations of widespread overcharging; three-fourths of the respondents who had been to a BHU had paid Rs2.00 or less for the service, including medicines (Chart No. 9).

Among the respondents who used the BHU/RHC there was general satisfaction with the services provided. The vast majority expressed satisfaction with the courtesy of the staff, the waiting time for service, and the fee charged, and most believed they had been treated by a physician (Chart No.10).

WHERE TREATED, MOST RECENT ILLNESS

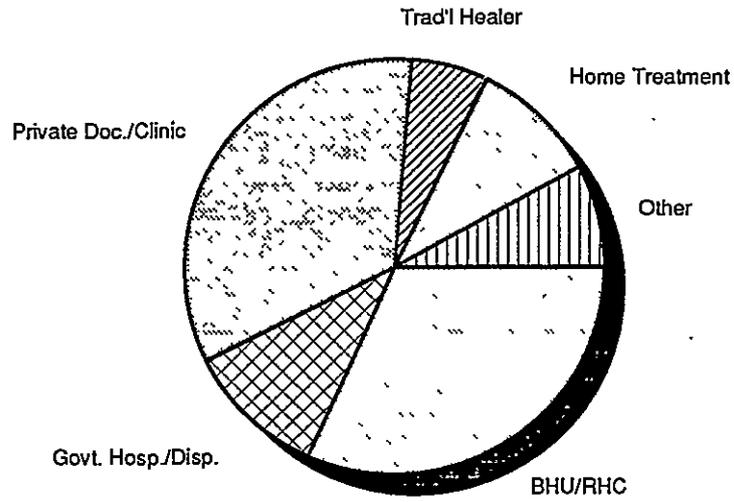


CHART NO. 5

WHERE USUALLY GO FOR HEALTH CARE

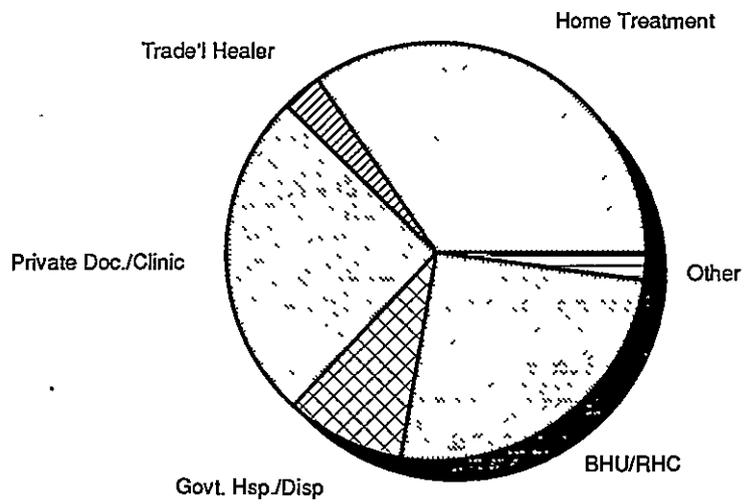


CHART NO. 6

WHERE SEEK TREATMENT FOR MALARIA

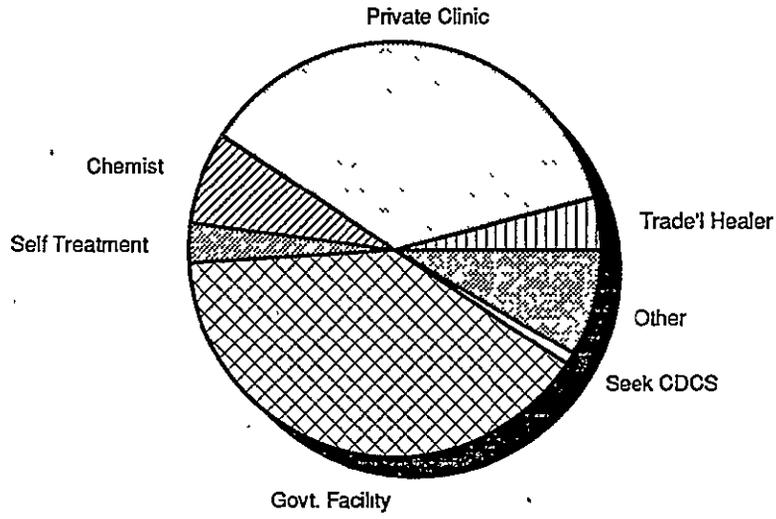


CHART NO. 7

REASONS FOR NOT USING BHU

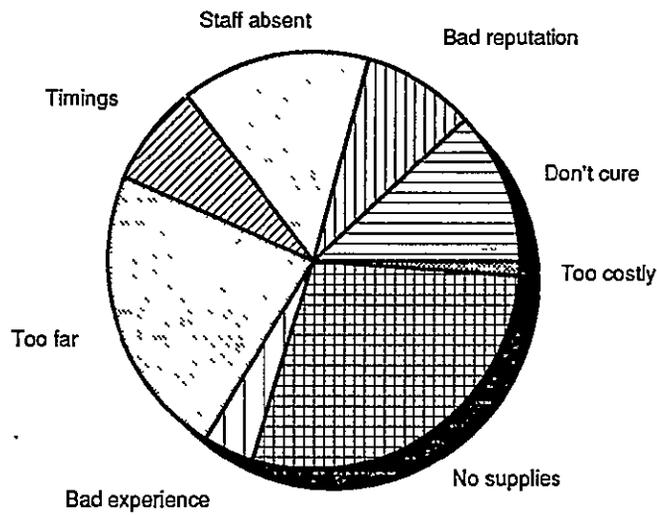


CHART NO. 8

FEE CHARGED FOR SERVICE, BHU

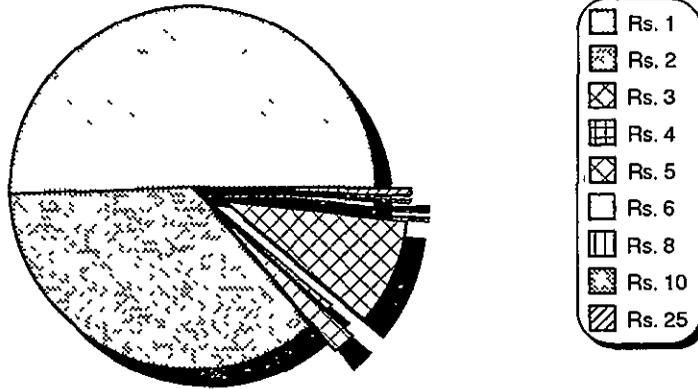


CHART NO. 9

SATISFACTION WITH BHU

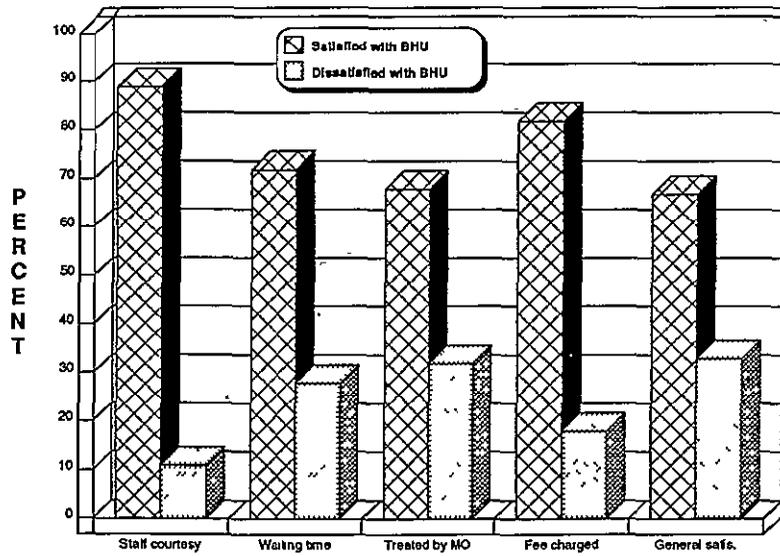


CHART NO. 10

MALARIA MANAGEMENT IN BHU/RHC

As may be seen from Attachment C, malaria tends to be an adult's disease; this is in contradistinction to diarrhoea.

The following charts reflect a fairly consistent pattern in the management of suspected malaria patients.

- o They are usually asked to describe the duration and pattern of fever (Chart No. 11).
- o A cursory physical examination is conducted -- the temperature is taken of only half of them (Chart No. 12).
- o They are given chloroquine, usually without a bloodtest (Chart No. 12), and
- o Sent home with limited counselling (Chart No. 13).
- o It is interesting (and reassuring) to note that when they are asked, as they depart the clinic, about their knowledge of how to manage the disease, they know a great deal more than they are told in the clinic (Chart No. 14).

MALARIA - OBSERVATION OF HISTORY TAKING

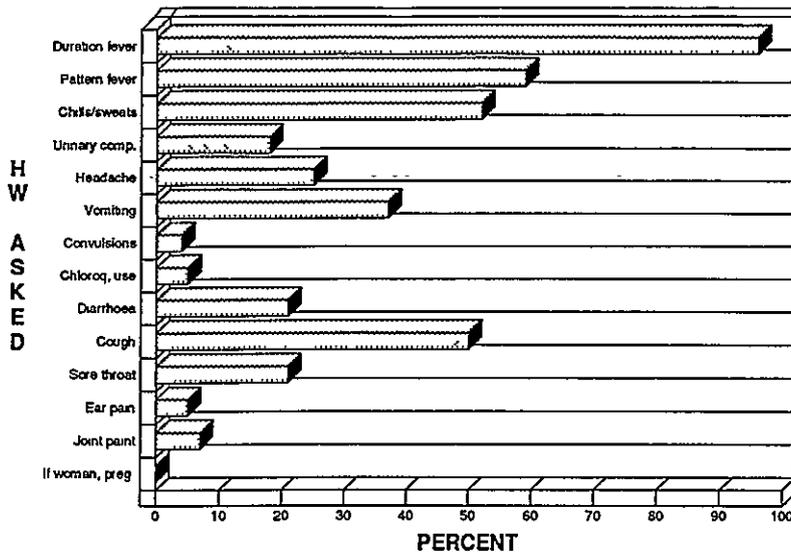


CHART NO. 11

MALARIA - EXAMINATION AND TREATMENT

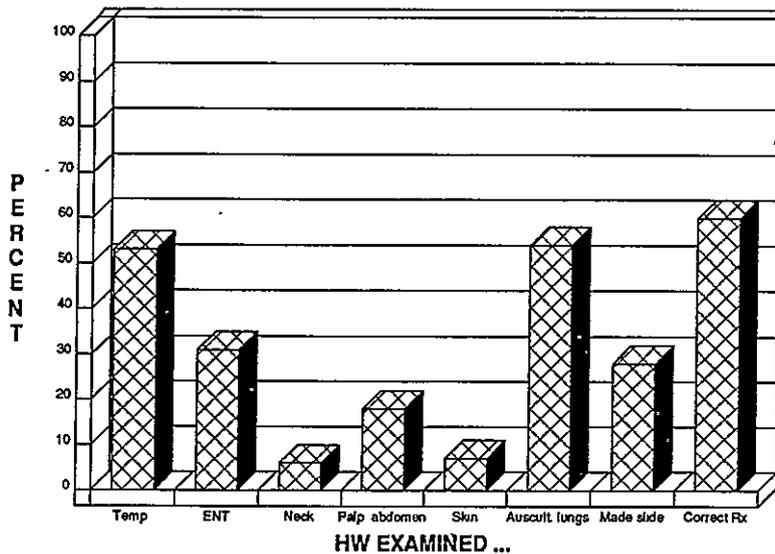


CHART NO. 12

MALARIA - OBSERVATION OF COUNSELING

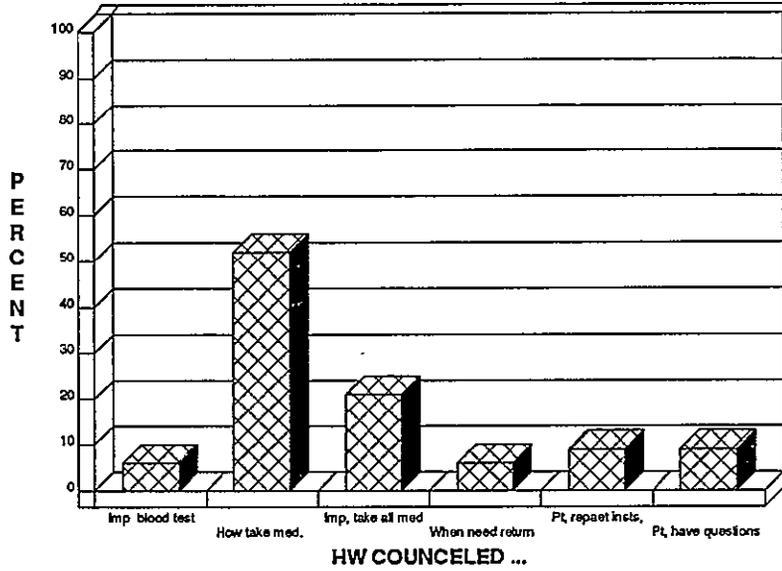


CHART NO. 13

MALARIA - EXIT INTERVIEWS

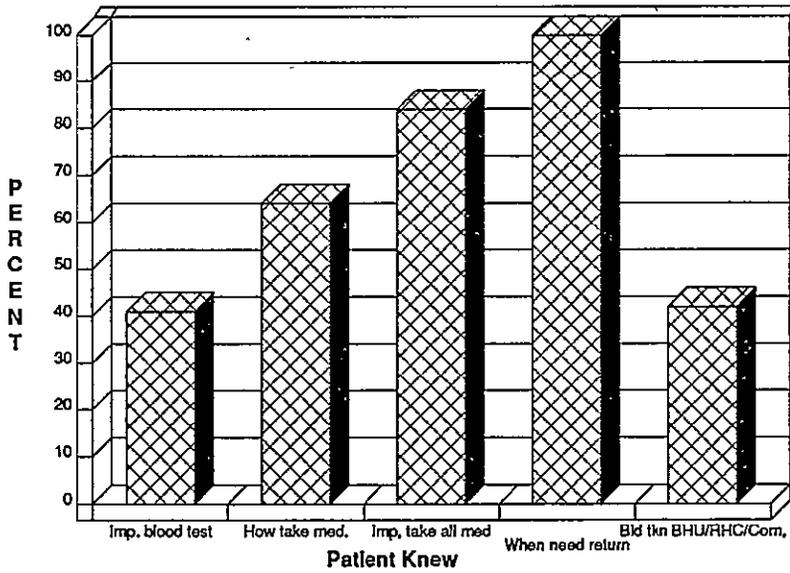


CHART NO. 14

DIARRHOEA MANAGEMENT IN THE BHU/RHC

Three findings stand out from the data on diarrhoea management:

- o First, practioners are reluctant to prescribe only ORS. While nearly all of the patients presenting with this complaint receive ORS it is usually in combination with an anti-diarrhoeal or antibiotic (Attachment D for detail).
- o Second, in both the history taking and examination, little is done to assess the degree of dehydration. While the clinician does inquire about the duration and frequency of diarrhoea he does not ask what has been done to manage it at home, does not ask if urine output is reduced, and other than checking the pulse (performed in half of the cases observed), does not conduct an examination that would reveal whether the patient is becoming dehydrated (Chart No.15,16).
- o Third, while counselling is fairly strong on using and preparing ORS for home use, the mother is given almost no information to help her assess when her child is getting into trouble. Apparently this counselling is needed. While the mother was able to correctly respond in the exit interivew to most of the questions regarding diarrhoea home management, virtually none of them could cite a sign of dehydration (Chart No.17,18).

DIARRHOEA-OBSERVATION OF HISTORY TAKING

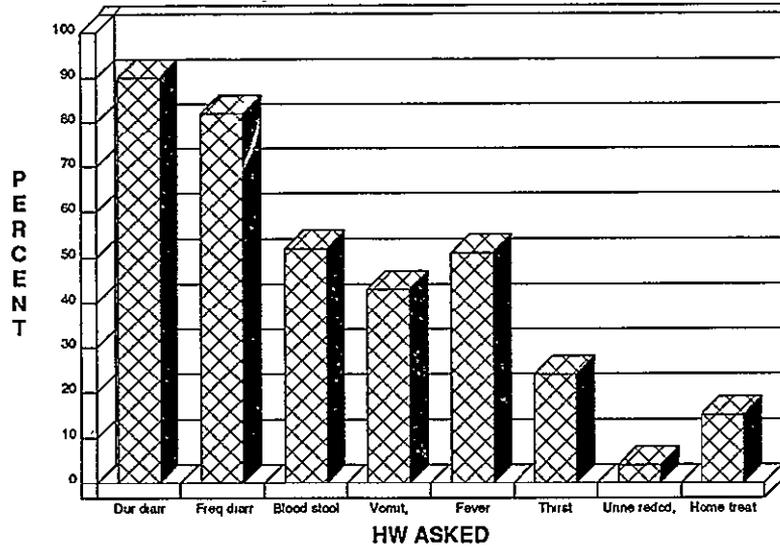


CHART NO. 15

**DIARRHOEA MANAGEMENT IN BHU/RHC
OBSERVATION OF EXAMINATION**

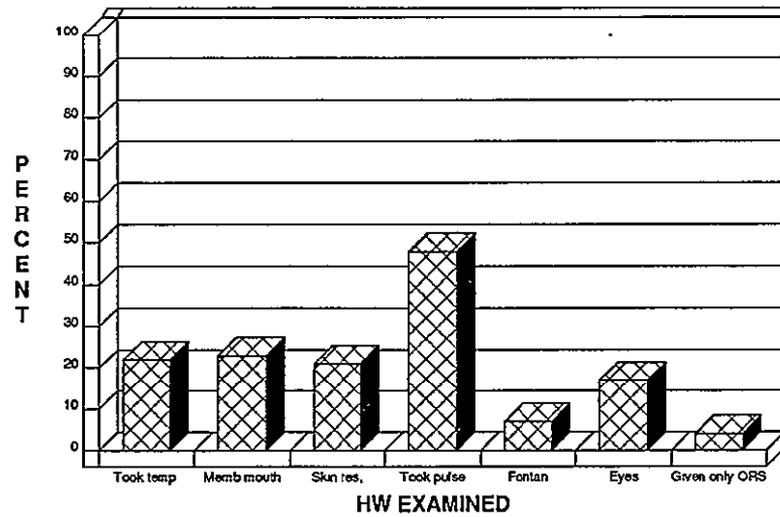


CHART NO. 16

**DIARRHOEA MANAGEMENT IN BHU/RHC
OBSERVATION OF COUNSELING**

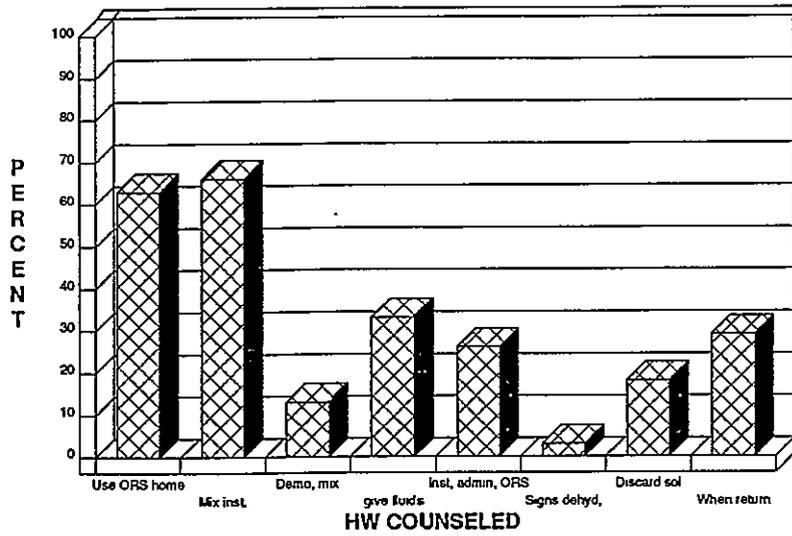


CHART NO. 17

**DIARRHOEA MANAGEMENT - EXIT INTERVIEWS
AT BHU/RHC**

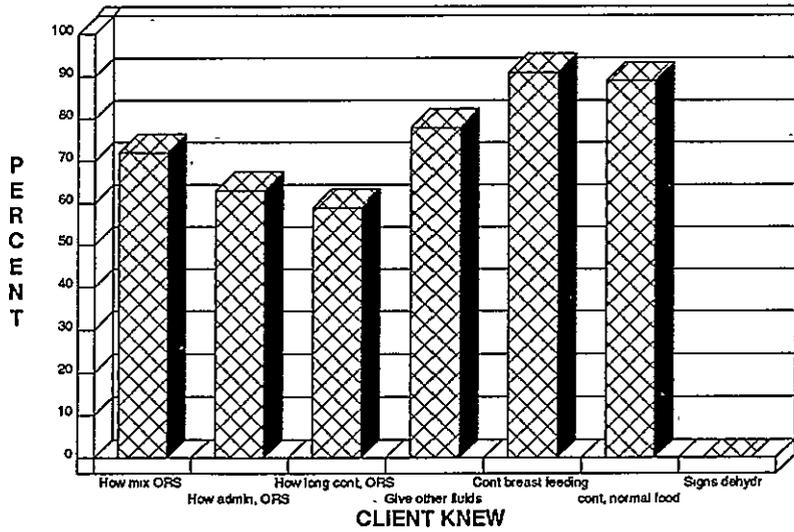


CHART NO. 18

VACCINATION IN BHU/RHC

Most of the vaccinations are provided by the MPHWH team; however some vaccinations are given to clients who come to the clinics, most commonly an RHC.

Vaccination appears to be a strong area with only minor exceptions. As the following charts show, the technical quality is consistently high. Counselling, as in every area, is weaker.

- o Mothers are not warned that the injection may produce a fever and, predictably, they do not know that information when questioned in the exit interviews (Chart No.19,22).
- o In about half of the cases they are also not told to leave the BCG scab alone, but in contrast to the preceding, most of them have been informed about this from some source (Chart No.19,22).
- o One finding deserves comment: All departing patients and clients were asked if they had a vaccination card with them. (Presumably most of those carrying cards came for vaccination but it is possible that some others brought all their health related documents with them regardless of the purpose of the visit.) An examination of those cards revealed that from one-fifth to one-half of the clients with cards were leaving the clinic with a vaccination due (Chart No.21).
- o In one-fifth of the cases un-sterile needles were being used.
- o General impression of the senior health officials is that some times bogus entries are made in the card but no vaccination is given. In this study it was found that in one-fifth of the cases vaccination was given but no entries were made in the cards (Chart No.19).

VACCINATION - OBSERVATION IN BHU/RHC

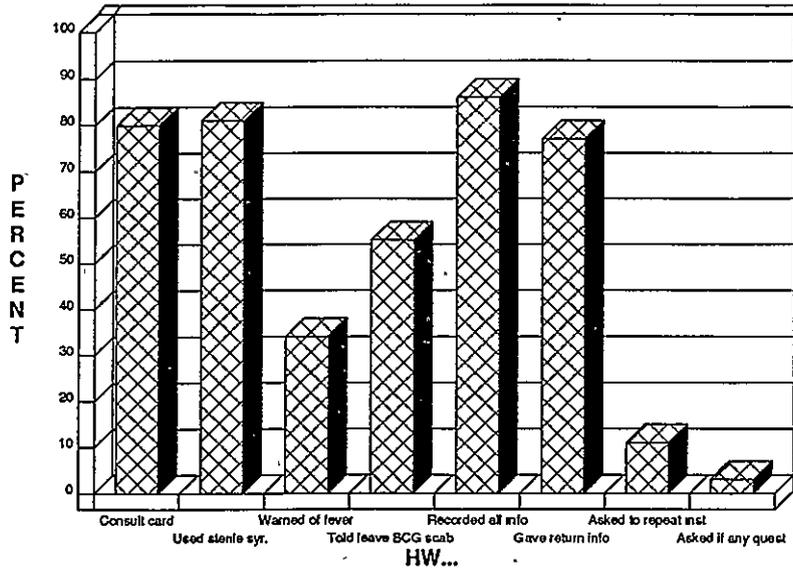


CHART NO. 19

VACCINATION - TECHNICAL ASPECTS

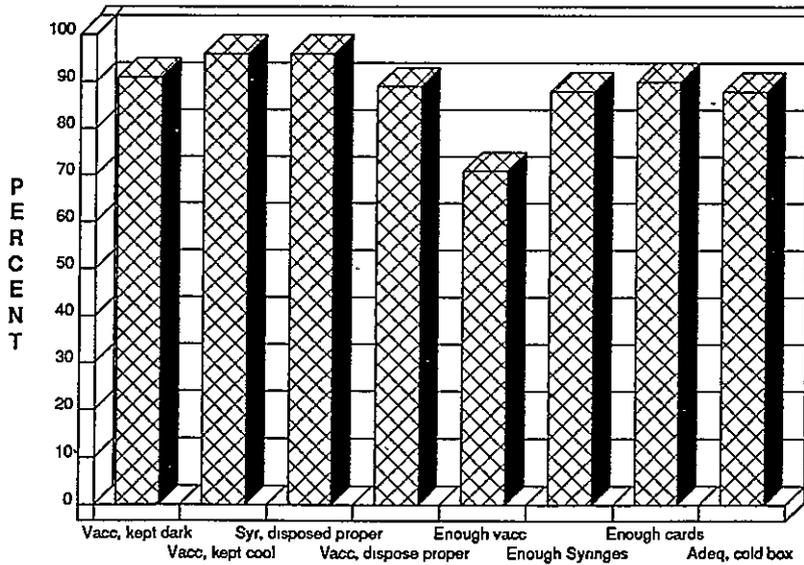


CHART NO. 20

- 68 Vaccination Sessions observed
- 480 Vaccinations observed

VACCINATION - EXIT INTERVIEWS AT BHU/RHC

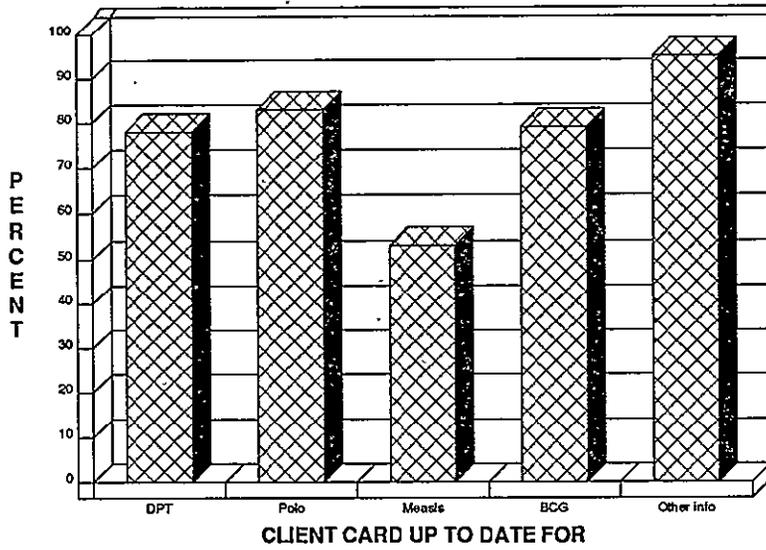


CHART NO. 21

VACCINATION-EXIT INTERVIEWS AT BHU/RHC

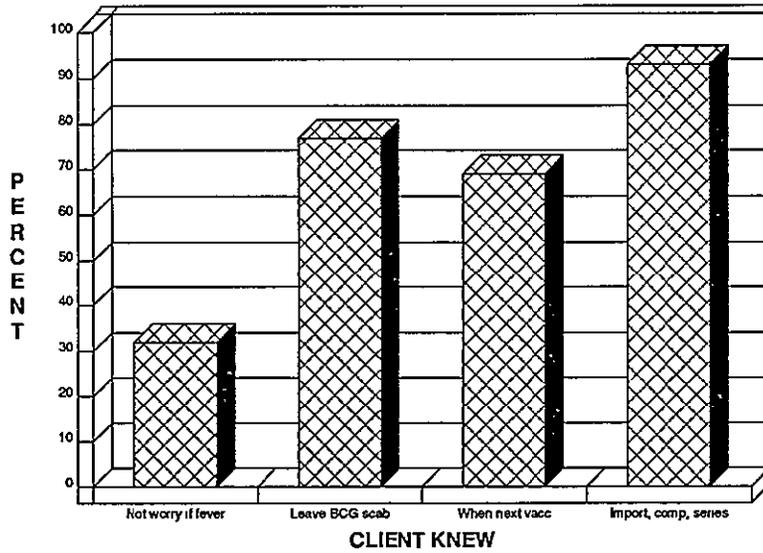


CHART NO. 22

IF OVERDUE FOR VACCINATION, REASON GIVEN

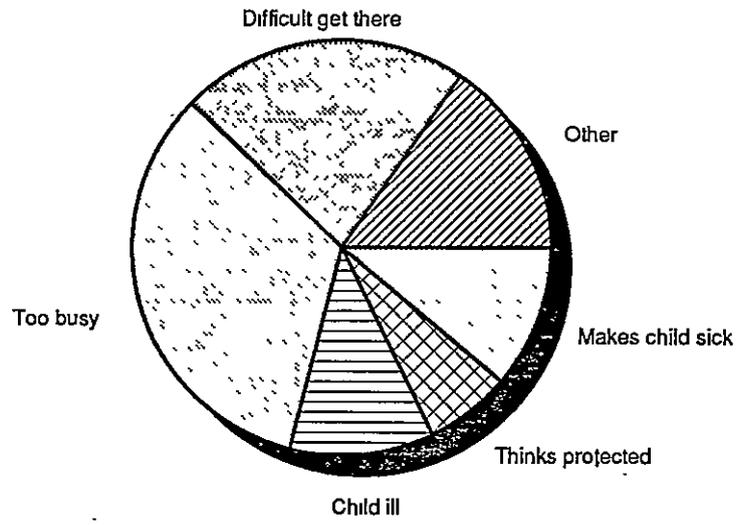


CHART NO. 23

MULTIPURPOSE HEALTH WORKERS

The observers recorded 853 contacts between MPHWS and villagers in 90 villages. The strongest impression that arises from the data collected is that there is a strong tilt toward vaccination in the outreach program.

- o During home visits the MPHWS was almost half as likely to ask about malaria/fever or diarrhoea as about vaccination and one-third as likely to ask about possible TB. Perhaps this accounts for the responses obtained in the household survey where the majority of the respondents identified the MPHWS who had most recently visited them as the vaccinator (Chart No. 24,26).
- o If the MPHWS did ask about fever or diarrhoea, he tended to follow up very well.
- o The percentage of people who received appropriate treatment was very high, once they had been identified as diarrhoea or fever cases (Chart No.26).
- o In 44% of the households at least one member of MPHWS had paid visit in last one month (Chart No.25).
- o In 12% of the cases un-sterile needles were being used. (Chart No.28)
- o In 13% of the fever cases the MPHWS did not ask for blood sample (Chart No.29).
- o The Vaccinator and CDCS are quite capable of doing each others' job, and this is usually seen in the field (Chart No.31,32).

A note on methodology. It is not certain that all of the observers followed the branching instructions to the letter (there is no hard evidence one way or the other on this). It is possible that some recorded the distribution of ORS packets to households where there was not a current diarrhoea case. Similarly, it is probable that household members spontaneously mentioned health problems when the MPHWS did not inquire specifically and the follow up services were recorded by the observer. Because of these possibilities it is safest to present the data on malaria and diarrhoea treatment as frequencies and not as percentages.

HOME VISITS BY HEALTH WORKERS

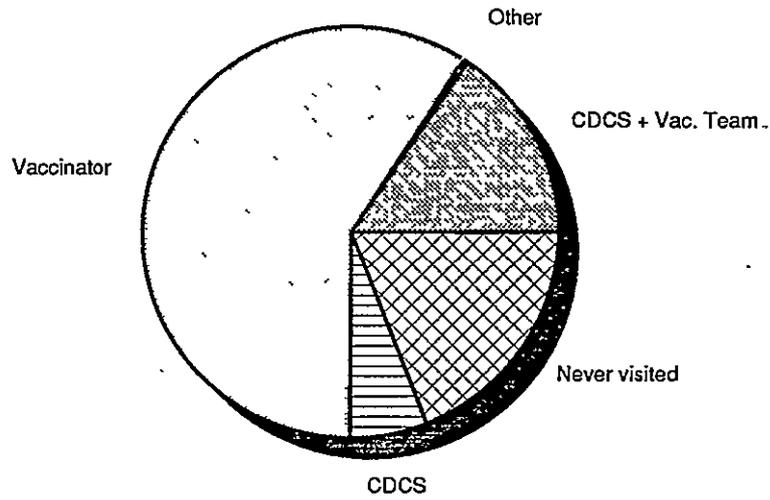


CHART NO. 24

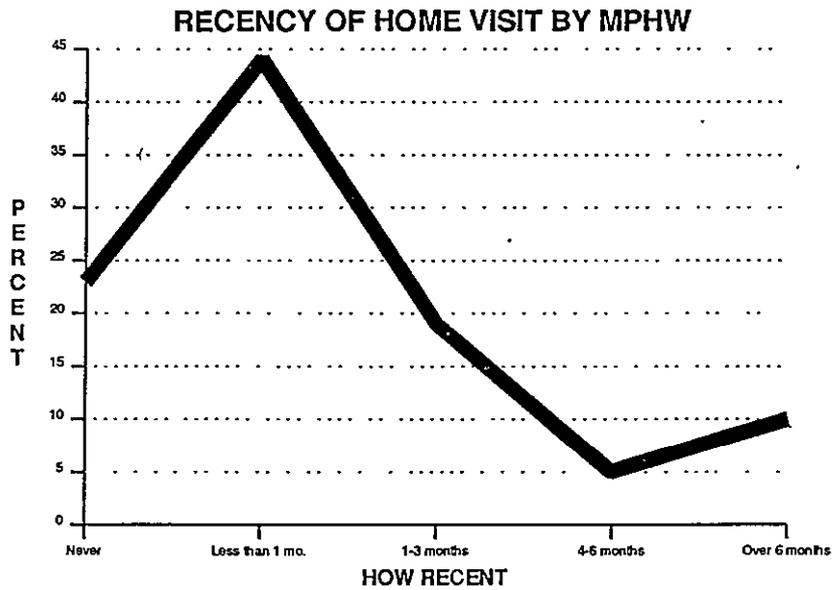


CHART NO. 25

**HEALTH CARE DURING HOME VISITS,
VILLAGERS' REPORTS**

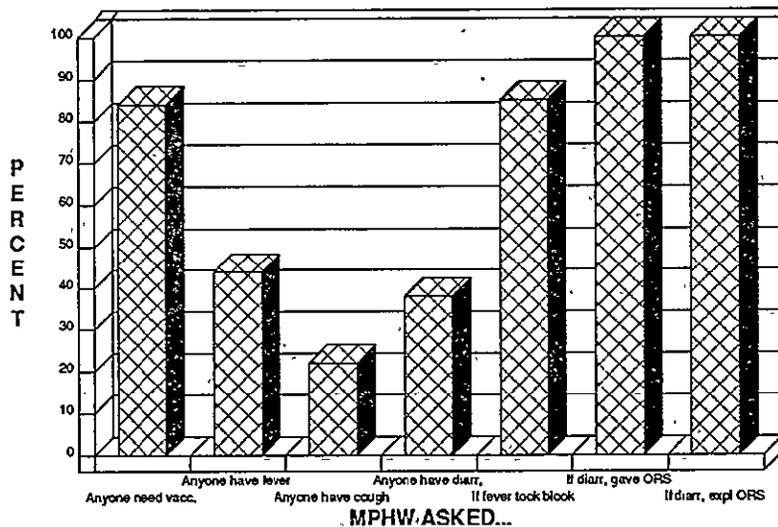


CHART NO. 26

MPHW HOME VISIT-SCREENING QUESTIONS

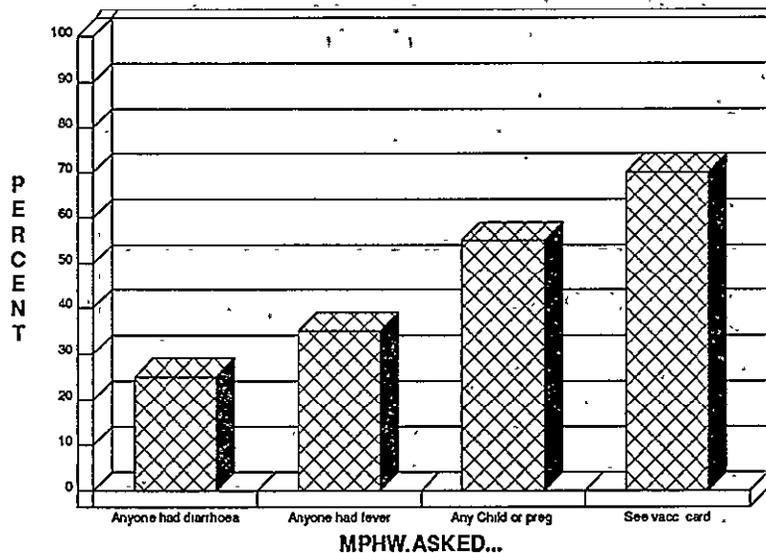


CHART NO. 27

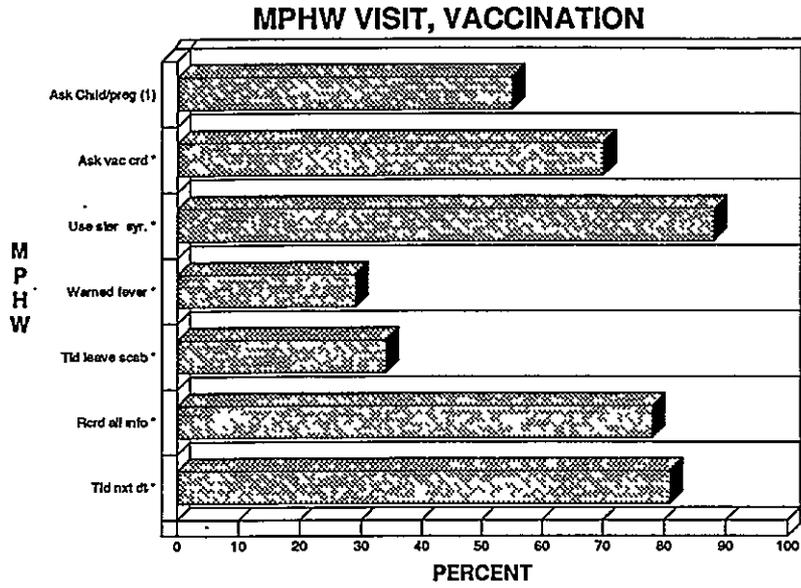


CHART NO. 28

●* If applicable

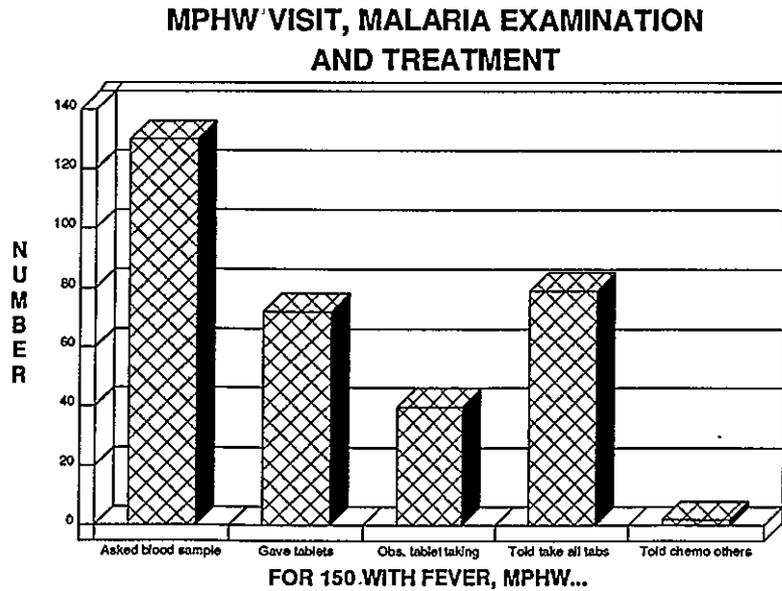
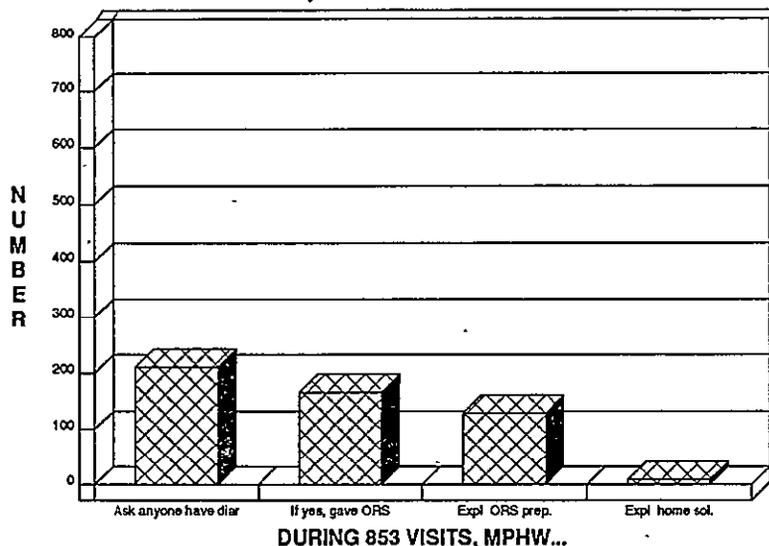


CHART NO. 29

MPHW VISIT, DIARRHOEA MANAGEMENT



DURING 853 VISITS, MPHW...

CHART NO. 30

SCREENING QUESTIONS

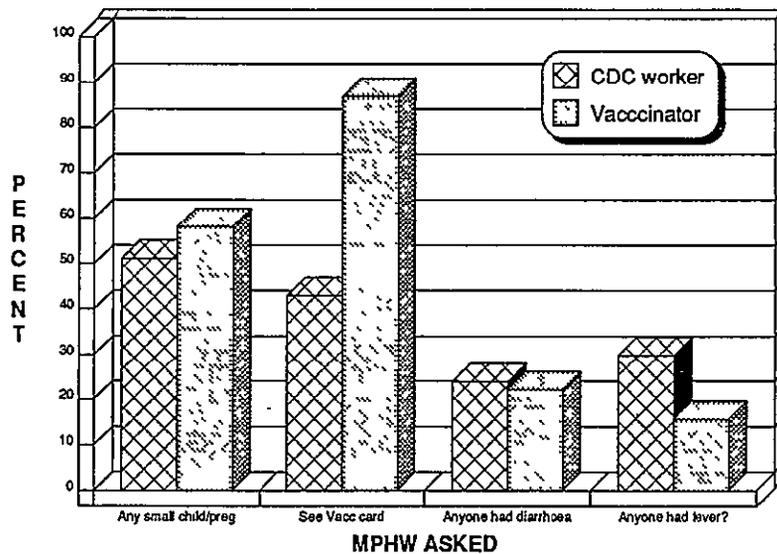


CHART NO. 31

MPHW HOME VISITS: SERVICES PROVIDED

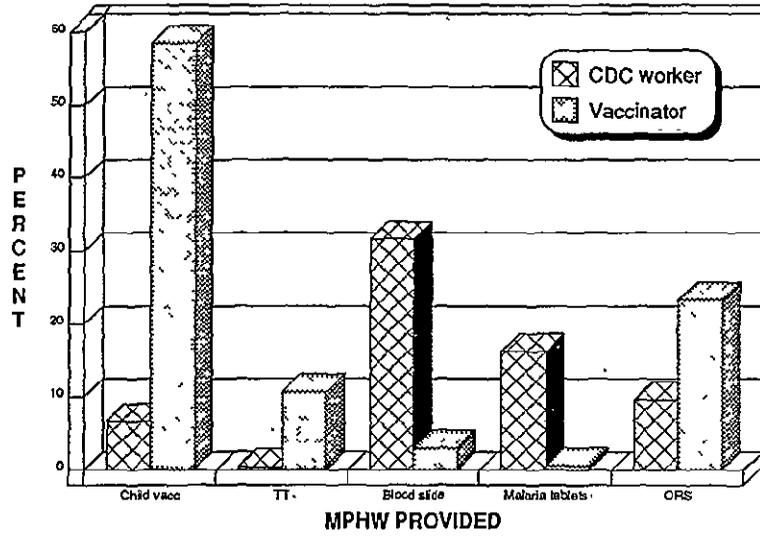


CHART NO. 32

SUPERVISION

The supervision observed in this study was conducted in the field and with MPHWs (very little evidence of clinic supervision was noted in the clinic records). Observers followed supervisors as they accompanied MPHWs on village visits and also observed the supervisor-supervisee interaction during meetings.

The set of charts (Nos.33,34,35) illustrate that supervisors were generally proactive. They went with MPHWs on home visits and in almost every instance provided on-the-job-training or asked household members about past MPHW performance. Again there is a tilt in the direction of vaccination and a pronounced tilt in favor of reviewing administrative tasks and paperwork.

We were interested to see whether our data would show any relationship between worker performance and supervision, although we did not expect to be able to register an immediate observable effect on worker performance from a single supervisor-supervisee interaction, as the impact of good (or poor) supervision is cumulative. Nevertheless, on the assumption that there was some consistency between the supervisory activities observed and those carried out on a regular basis, a number of correlation analyses were made between observed MPHW task performance and supervisory activities. As expected, these produced very little. However there were two exceptions to this.

- o The first was in the area of malaria case discussions. For every union council the percentage of interactions between supervisor and MPHW was calculated where the supervisor discussed specific malaria cases with the supervisee (not a large percentage, on average). This was positively correlated with an aggregate score of supervisee performance on malaria items ($R = .36$). Apparently the more often the supervisor took time to discuss a case with the worker, the more malaria tasks the worker was likely to carry out (Chart No.36).
- o A stronger association ($R = .59$) was obtained when all supervisor inputs on malaria were correlated with an aggregate score for all MPHW malaria related activities, i.e. the more ways the supervisor tried to assist the worker, the higher the workers performance (Chart No.37).

These two associations suggest that supervisory inputs in the malaria area may produce the greatest yields in terms of improved MPHW performance, even given the infrequency of such contacts. An alternative explanation is that the CDC supervisory staff (CDCOs, CDCIs) were the more effective supervisors (one of the more impressive supervisors was a CDCO).

The final group of charts (Nos.38,39,40,41) present the results from the meetings between supervisors and MPHs (these were static meetings, no homes were visited). Again a tilt toward emphasizing the importance of paperwork over field work may be noted and slightly more attention is given to vaccination related issues.

One omission in the supervisor-supervisee meetings that merits comment is the paucity of discussion on achievements. In one-third of the observed meetings between supervisors and MPHs vaccination achievements were discussed; in less than one-sixth of those meetings did achievements in ORS distribution or malaria control come up. Emphasis on achievements is a common managerial approach to improving motivation and output; there appears to be room for more attention to achievements in these interactions.

FIELD SUPERVISION OF MPHWS

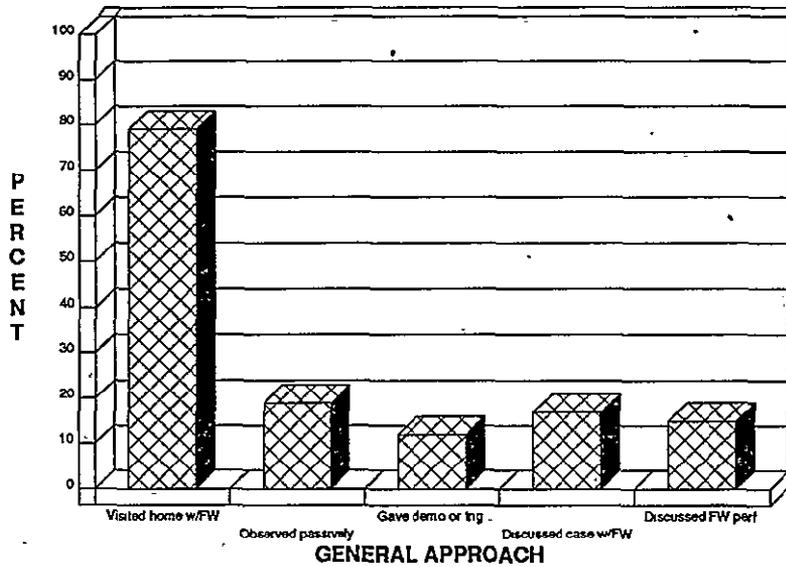


CHART NO. 33

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FIELD SUPERVISION, MPHWS

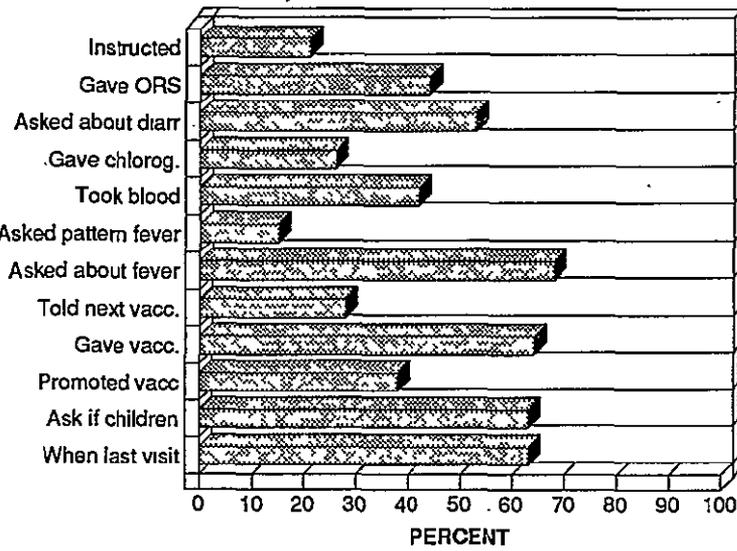


CHART NO. 34

HOME VISIT BY FIELD SUPERVISOR

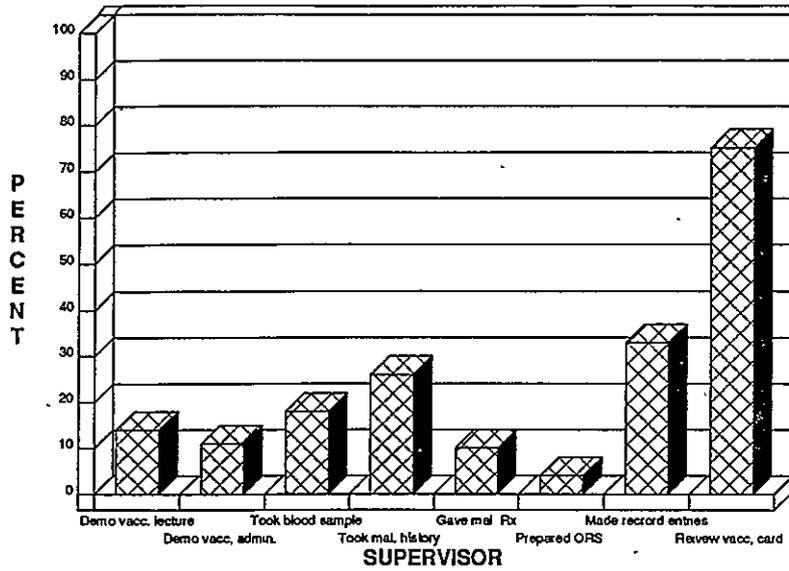


CHART NO. 35

- 192 home visits by Supervisor observed

SUPERVISION AND MPH W PERFORMANCE, DISCUSSIONS

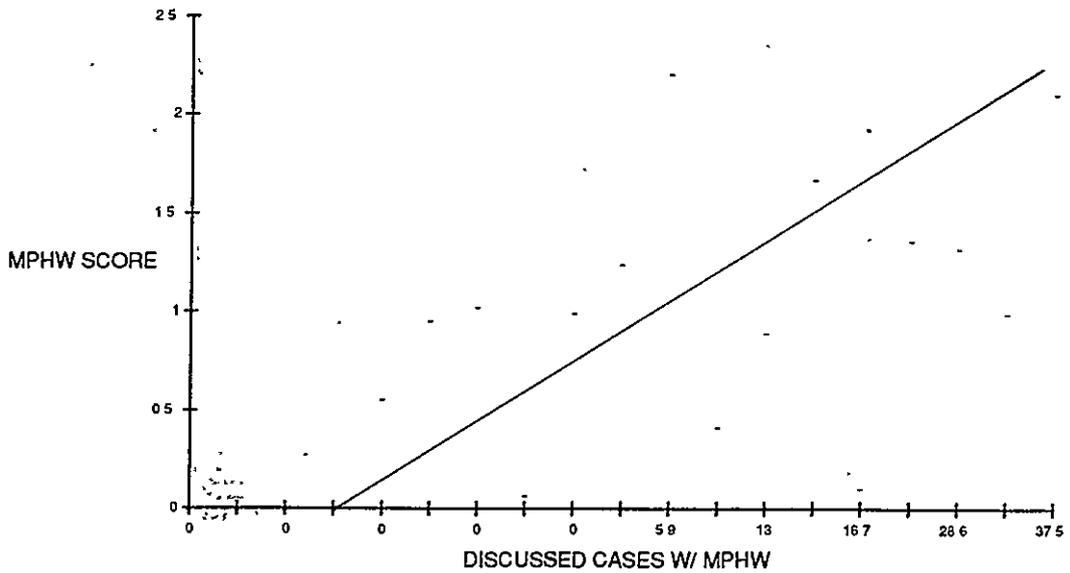


CHART NO. 36

SUPERVISION AND MPHW PERFORMANCE, MALARIA

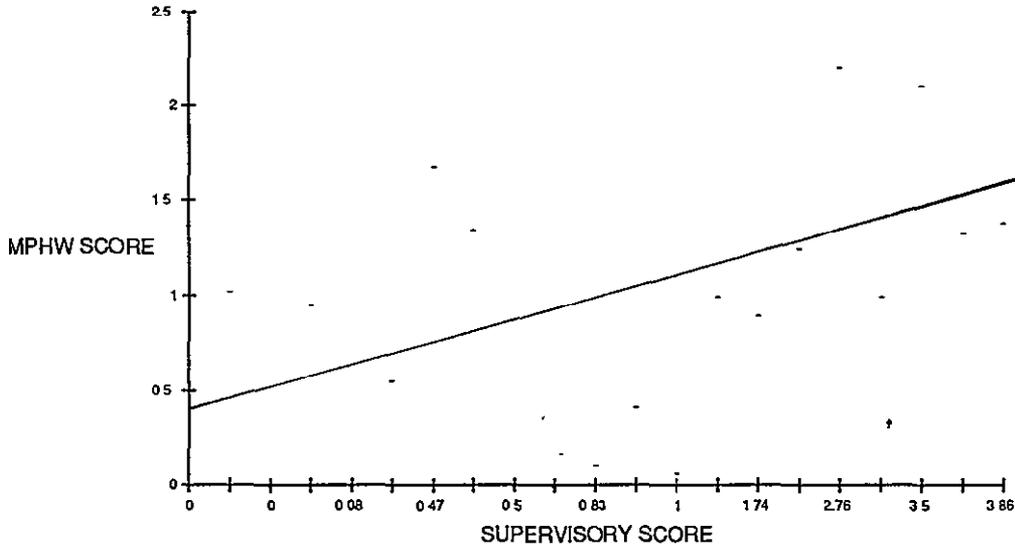


CHART NO. 37

SUPERVISORY MEETING WITH MPHW - ACTIVITIES

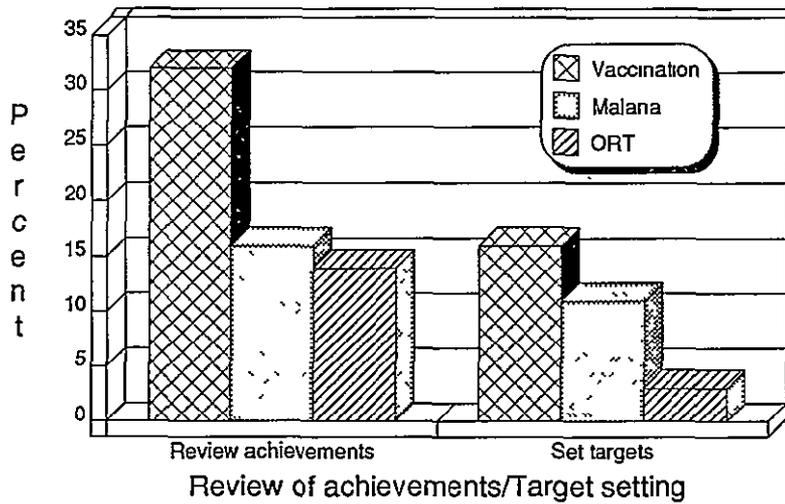


CHART NO. 38

● 37 meetings observed

SUPERVISORY MEETING WITH MPHWS - ACTIVITIES

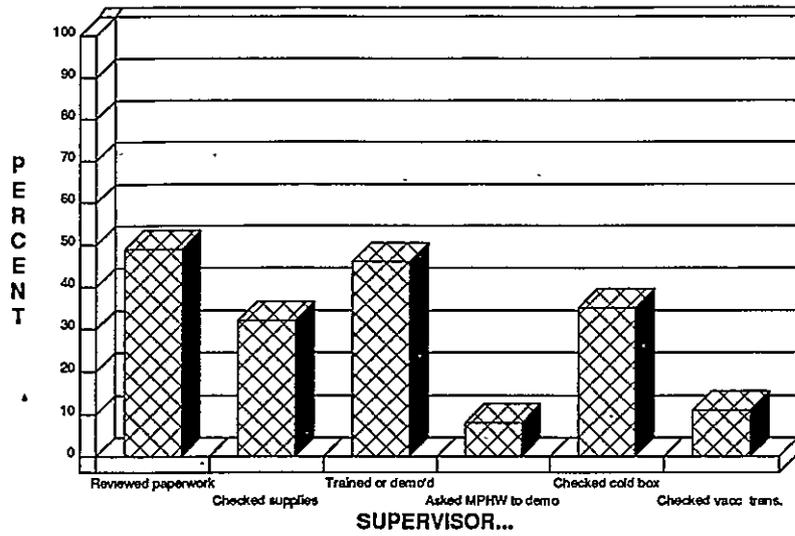


CHART NO. 39

● 37 meetings observed

SUPERVISORY MEETING WITH MPHWS - TRAINING

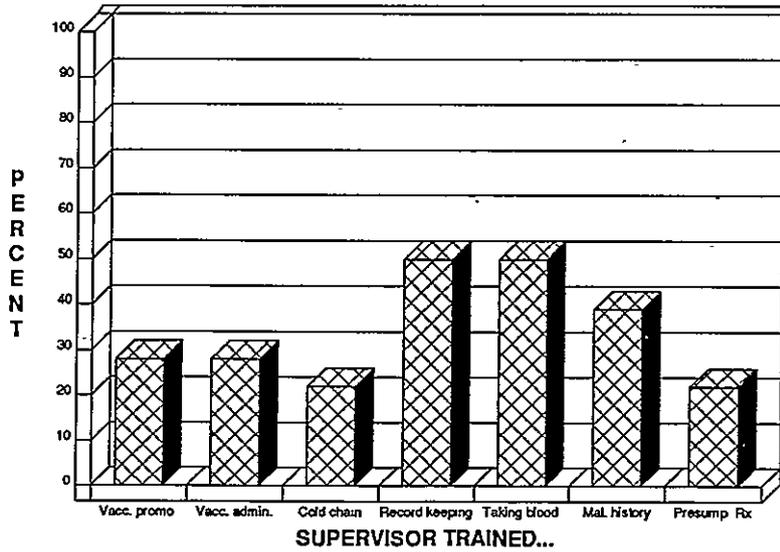


CHART NO. 40

● 37 meetings observed

SUPERVISORY MEETING WITH MPH TECHNICAL ASPECTS

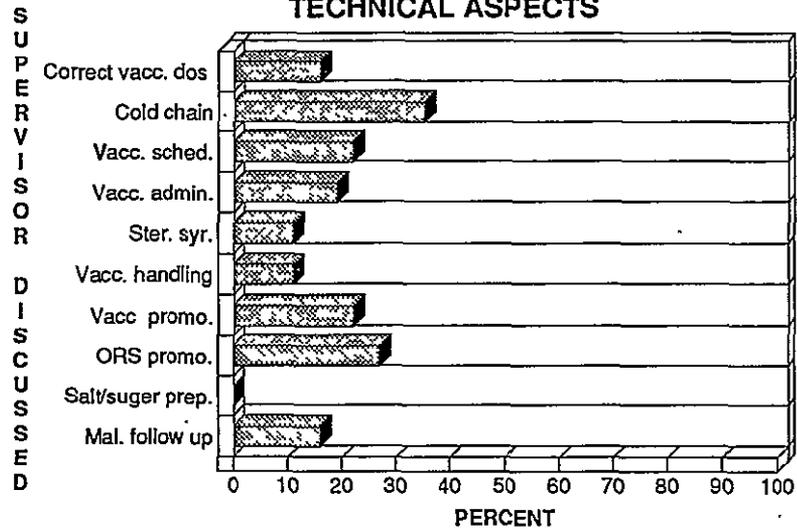


CHART NO. 41

● 37 meetings observed

HIGH - LOW COMPARISONS

One of the primary objectives of the study was to isolate factors that account for the differential popularity of individual facilities. It was hoped that by identifying such factors a key might be found to improve the attractiveness and utilization of all BHUs. A wide variety of hypotheses was developed, some of which are represented on the following charts. Curiously, the more intuitively obvious hypotheses failed.

Associations considered and rejected include:

- o Client satisfaction with the BHU (Chart No.42)
- o Workers' performance on importance diseases (Diarrhoea, Malaria) in the BHU (Chart No.43,44,45).
- o Good patient counselling at BHU (Chart No.46).
- o Knowledge of exiting patients (Chart No.47).

One relationship was consistent and positive. That is, every major activity of outreach workers was performed better in the areas around high performing BHUs. Note that the extent of coverage was the same for high and low BHUs; a villager was no more likely to be called upon by an MPHWS if he lived near a high activity BHU. However, the MPHWS was more likely to ask more questions and provide better follow up services in areas around high activity BHUs. The explanation that immediately comes to mind is that a person will gain confidence in government-provided health services if the services brought to his or her door are of consistently high quality. If this is true then the key to improving BHU utilization lies not in the clinics themselves, but in the efforts of outreach workers (Chart No.48).

Note: From the analysis of field worker supervision (Chart No.36,37) the data show the importance of good supervision in improving field performance. Since good field worker performance tends to increase BHU utilization (Chart No.48), then improving field workers supervision may be the key to increasing BHU utilization.

**DIFFERENCE BETWEEN HIGH AND LOW
ACTIVITY BHUS**

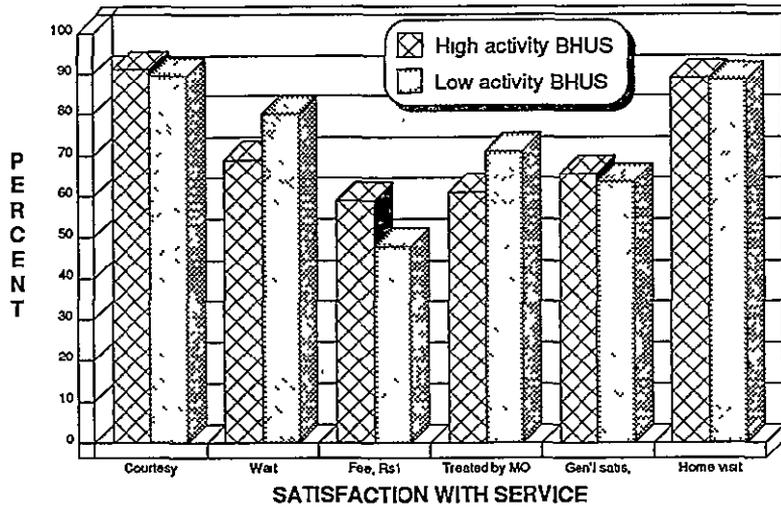


CHART NO. 42

**DIARRHOEA - OBSERVATION OF HISTORY
TAKING**

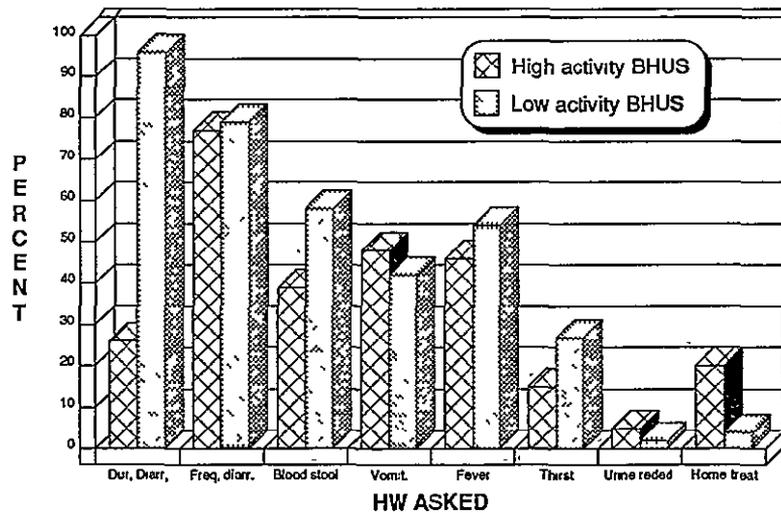


CHART NO. 43

**DIFFERENCE BETWEEN HIGH AND LOW
ACTIVITY BHUS**

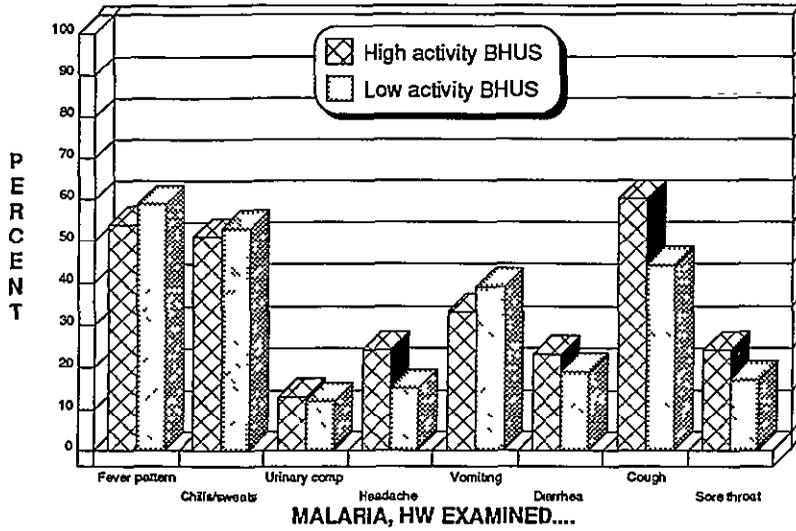


CHART NO. 44

**DIFFERENCE BETWEEN HIGH AND LOW ACTIVITY
BHUS**

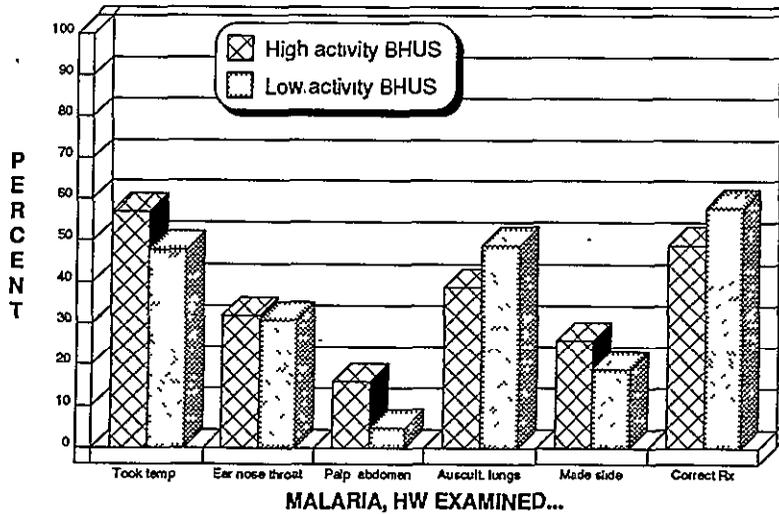


CHART NO. 45

**DIFFERENCE BETWEEN HIGH AND LOW
ACTIVITY BHUS**

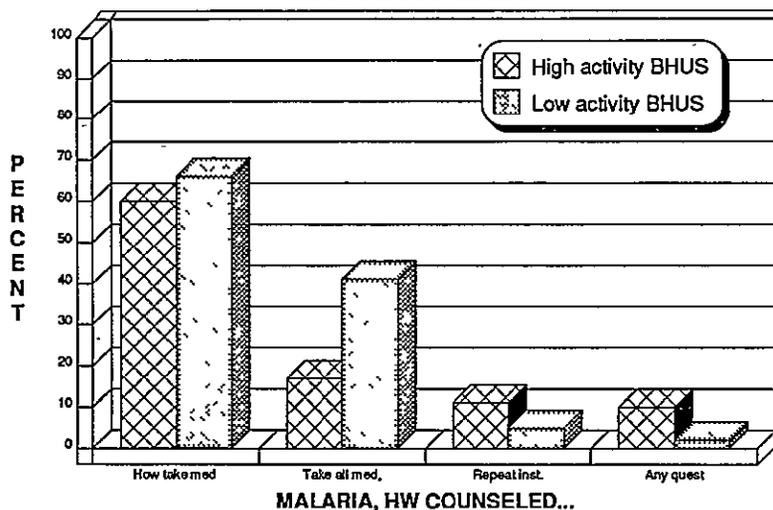


CHART NO. 46

**DIFFERENCE BETWEEN HIGH AND LOW
ACTIVITY BHUS**

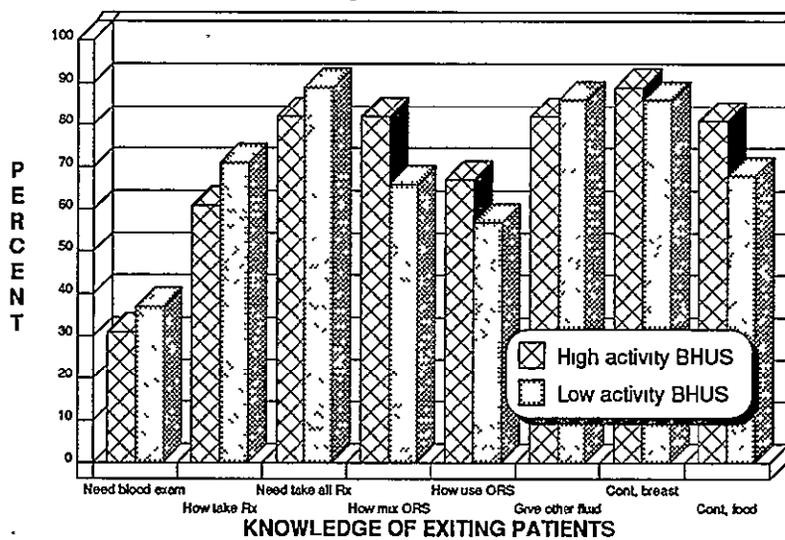


CHART NO. 47

DIFFERENCE BETWEEN HIGH AND LOW ACTIVITY BHUS

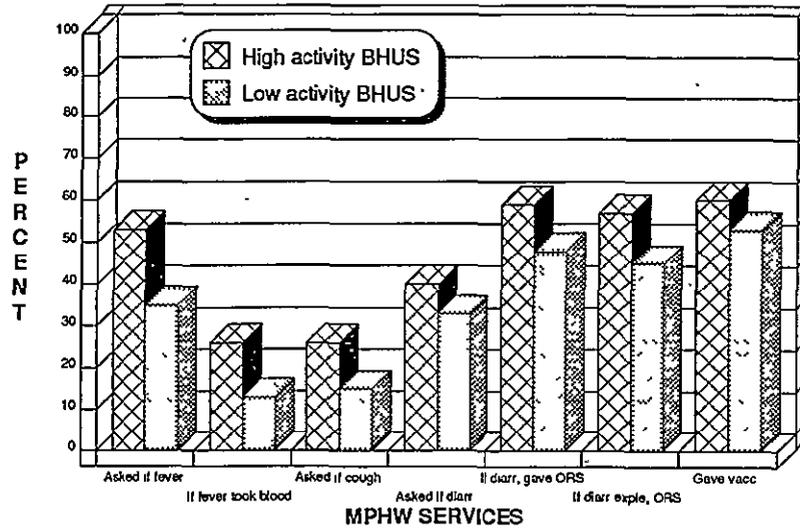


CHART NO. 48

WORKSHOPS

Two workshops were held in Lahore to discuss the findings of PRICOR-Punjab Task Allocation Study.

OPERATIONS RESEARCH WORKSHOP LAHORE, 16 AUGUST, 1989

On 16 August senior officials of the Punjab Health Department met to review and discuss the results (Annexure B-I). Each of five officials took the lead in presenting the data and highlighting key findings (Annexure B-II). The results seen as especially significant included:

General

The increase in utilization of government facilities to a level approximating 50% of the respondents was seen as encouraging. However disappointment was expressed that so few villagers saw the CDCS as a health resource for malaria care.

Malaria

The weak areas requiring special attention were the following:

- failure to ask women if they are pregnant
- failure to ask about prior chloroquine self-medication
- a more complete medical exam to include temperature, auscultation of the lungs, and taking a blood slide
- improved counselling of all topics

Diarrhoea Management

Concern was expressed over the failure of clinicians to assess the degree of dehydration. Further, the current low level of prescribing ORS only required urgent attention.

Vaccination

Although this was not a particularly weak area it produced a large number of comments and suggestions:

- o clients should not leave the clinic with vaccinations overdue
- o mothers should be warned of possible fever following an injection
- o better counseling on caring for the BCG scab was required
- o all clients should be asked to repeat instructions, particularly the date of the next vaccination

Outreach

The discussants were very disappointed that one fifth of the surveyed respondents reported they had never been visited by an outreach worker.

The emphasis on immunization in the outreach program was noted and discussed. It was observed that the other activities could be brought up to the same level without sacrificing the EPI program.

Supervision

There was interest in the positive results achieved in malaria supervision. And there was strong disappointment expressed at the failure of supervisors to stress achievements in their meetings with MPHWs.

The consensus of the group was that the findings should provide a basis for action in a wide number of areas. Further, they should be disseminated to operating managers.

OPERATIONS RESEARCH WORKSHOP LAHORE, 10 SEPTEMBER, 1989

After discussing the results of PRICOR Punjab Task Analysis Study in a workshop on 16 August, 1989 it was decided that a workshop with Divisional Directors as main participants should be held. One of the major objectives of the workshop was to disseminate the information to the Divisional Directors so that in its light they could make improvements in their respective divisions. Therefore a workshop was held in Lahore (Annexure C-I, C-II, C-III) on September 10, 1989 and after long discussions participants proposed the following:

IDEAS/PROPOSALS

1. Check list for every level (DHO, MO, HT, etc.), should be made.
2. Check list for both clinic and community work should be made, at Directorate General level.
3. Supervisor when claiming TA/DA, should also submit supervisory checklist, duly completed.
4. Job descriptions for every staff, preferably in chart form should be made.
5. Instructions have already been issued about regularly supervisory visits to each facility within jurisdiction i.e. by DHO (1 in 3 mos.), ADHO (monthly). These should be enforced.
6. Mid-wife should be involved in vaccination program, esp. TT.
7. Posts of Supervisory staff (eg ASV, DSV) should be filled as soon as possible.
8. System of accountability should be strengthened.
9. Juniors should be emphasized to give priority to people and patients.
10. Tehsil level monitoring should be improved.

11. Jobs should be given in accordance with qualifications and experience, i.e. Right person for right job.
12. Individual interest of ADHO and DHO should be generated.
13. Mid-supervisors (ADHO) should show their work to DHO on regular basis. ACR (Annual Confidential Report) of ADHO should be based on this supervisory report.
14. Effective utilization of monthly meeting of field staff with supervisory staff (ADHO/DHO) should be made.
15. Local monthly meetings at Tehsil, District, and Divisional levels should be held. After 6 months, report should be produced regarding performance of lower supervisory staff; and then Div. Directors should have a meeting with Director General.
16. Medical Officer training should be more practical.
17. Frustration among malaria workers regarding their job and grade should be removed.
18. CDCs and Vaccinators do not have equal TA/DA leading to friction. This should be settled.
19. Number of Inspectors should be increased.
20. Incentives for workers should be attractive.

SOURCES OF DATA

<u>COLLECTION METHOD</u>	<u>SITE</u>	<u>PROTOCOL</u>	<u>SAMPLE</u>
INTERVIEW	CLINIC	EXIT INTERVIEW	715
	FIELD	HOUSEHOLD SURVEY	1313
OBSERVATION	CLINICS	VACCINATION	77
		MALARIA CASES	195
		DIARRHOEA CASES	169
	FIELD	MPHW	853
		SUPERVISORS	229

HOUSEHOLD SURVEY
Total samples = 1313

I am asking questions about health and how people get treatment. The answers will be used to improve the kind of treatment available. These questions will take less than ten minutes to answer; could you spare me that much time.

1. Think back to the last time someone in the house was sick.
 - a) What was the person's --
 age in years: 25 % under one; 60% under five
 sex: M - 44%; F - 48%
 - b) What was the illness?
 - 1 - diarrhoea - 21%
 - 2 - measles - 2%
 - 3 - whooping cough - 0.6%
 - 4 - tetanus - 0.2%
 - 5 - ear infec. - 0.5%
 - 6 - TB - 1%
 - 7 - diphtheria - 0%
 - 8 - polio - 0.1%
 - 9 - ARI - 3%
 - 10 - fever/mal. - 23%
 - 11 - hypertens. - 1%
 - 12 - diabetes - 0.2%
 - 13 - worms - 0.6%
 - 14 - other - 24%
 - 15 - multiple illnesses - 18%
 - c) How many days did it last? (see chart)
 - d) Did the person go somewhere for treatment?
 - 1 - BHU/RHC - 25%
 - 2 - Gov't hospital/dispensary - 11%
 - 3 - Private doc/clinic - 34%
(not necessarily qualified)
 - 4 - Traditional healer 6%
(hakeem; homèopath, elders)
 - 5 - Other - 5%
 - 6 - No. treated in home - 10%
 - 7 - BHU/RHC and another facility - 7%
 - 8 - more than one place but not BHU/RHC - 3%
 - e) If someone in the house is so sick they need treatment, where would they go?
 - 1 - BHU/RHC - 18%
 - 2 - Gov't hospital/disp - 9%
 - 3 - Private doc/clinic - 25%
(not necessarily qualified)
 - 4 - Traditional healer - 3%
(hakeem, homeopath, elders)
 - 5 - Other - 2%

- 6 - BHU/RHC and another place - 7%
- 7 - More than one place but not BHU/RHC - 3%
- 8 - Local remedies/home treatment - 34%

f) You did not mention the sick person going to a BHU/RHC. Why not?

- 1 - Bad experience - 4%
- 2 - Bad reputation (vague answer) - 9%
- 3 - No supplies - 29%
- 4 - Staff absent - 15%
- 5 - Too far - 23%
- 6 - Too costly - 1%
- 7 - Inconvenient timings - 8%
- 8 - Do not cure - 12%

g) You mentioned going to a BHU. Please tell me about your experience there.

	Yes	No
Was the staff courteous?	89	11
Did you have to wait long?	72	28
How much did you pay? (see chart)		
Were you treated by the MO? (probe by asking, "Was that Dr. ____?")	68	32
Were you generally satisfied if no, Why not?	67	33

2. Have you ever been visited by a male member from the health department? If Y, by whom?

- 1 - No - 19%
- 2 - CDCS - 6%
- 3 - Vaccinator - 59%
- 4 - Other - 0.3%
- 5 - Multiple HWs visited - 15%

a) Do you remember how long ago that was?

- <1mo. = 44%; 1 - 3 mos. = 19%; 4 - 6 mos. = 5%;
- >6 mos. - 10%

b) What did the person do and talk about when he visited you??
(allow thirty seconds for unprompted reply and then read list)

	Unp	Yes	No
Did he ask if anyone had fever?	1%	43%	56%
if Y, Did anyone have fever?		14% of above	
if Y, Did he ask to take blood?		85%	
Did he ask if anyone had cough?	1%	20%	79%
Did he ask if anyone had diarrhoea?	1%	37%	62%
if Y, Did someone have diarrhoea?		20% of above	
if Y, Did he give ORS packets		100%	
if Y, Did he tell you how to use them?		100%	
Did he ask about vaccinations?	1%	84%	13%
if Y, Did he give vaccinations?		62% of above	

3. If a person is sick, what symptoms would make you think they had

malaria?

no prompts, check answers given . . .

fever

chills/sweat

headache

vomiting

convulsions

51% mentioned none; 25% mentioned one symptom; 16% mentioned 2 symptoms; 6% mentioned 3; 2% mentioned 4

a) If you had malaria, what would you do first?

- 1 - Go to govt. health facility - 39%
- 2 - Go to private doctor - 36%
(not necessarily qualified)
- 3 - Go to chemist - 7%
- 4 - Seek health department worker - 1%
- 5 - Self treat with chloroquine - 3%
- 6 - Go to traditional healer - 4%
- 7 - Other - 8%
- 8 - Go to BHU/RHC and other place - (6% - incl in 1)
- 9 - Go to more than one place but not BHU/RHC - 2% - not incl in 1)

b) Do you have to take all the tablets given you or should you stop after the fever stops

- 1 - take all=41%; 2 - stop=54%

c) Is there a way to prevent malaria?

- 1 - Chemoprophylaxis - 5%
- 2 - Mosquito control measures - 23%
- 3 - Other - 4%
- 4 - No - 64%
- 5 - More than one mentioned - 3%

4. Are there women between the ages of 15 and 40 living in the house?

a) if Yes, Have they been vaccinated against tetanus toxoid?

- 1 - All of the women - 24%
- 2 - Some of them - 19%
- 3 - None of them - 44%
- 4 - Don't know - 5%

5. Are there children living in the house who are less than five years old?

a) What do you do when they suffer an attack of diarrhoea?

- 1 - Give ORS - 82%
- 2 - Give fluid without ORS 16%
- 3 - Take for treatment
Where?
 - 1 - BHU/RHC - 31%
 - 2 - Gov't hospital/disp - 9%
 - 3 - Private doctor or clinic - 43%
(not necessarily qualified)
 - 4 - Traditional healer - 6%
(hakeem, homeopath, elders)
 - 5 - Chemist - 3%

- 6 - Other - 2%
- 7 - BHU/RHC and other - 5%
- 8 - Multiple, not BHU/RHC - 1%

- b) Please describe how you mix the solution.
Right-67%; Wrong - 33%
- c) How often do you give the child the solution?
Right - 74%; Wrong - 26%
- d) Do you continue to feed the child while he or she has diarrhoea?
Yes-77%; No-23%
- e) When would you take a child with diarrhoea to the health facility?
check each correct answer, no prompts. . .

Immediately - 51% gave this answer
 Unable to drink
 Fast breathing
 Dry skin
 Small amount of dark urine
 Sunken fontanelle
 Very sleepy or unconscious
 If vomiting doesn't stop
 If child doesn't improve with ORS 49
 23% had no response; 22% mentioned one symptom;
 5% mentioned more than one

- f) Do you have any ORS packets in the house now?
Yes - 32%; No - 67%

6. Do you have vaccination cards for the young children?

- 1 - Yes, seen - 59%
- 2 - Not available - 32%
- 3 - No - 9%

if Yes, ask for and inspect the cards of two children to see if they are fully vaccinated by age for:

		Yes	Partial	No
Child 1:	BCG	92%	-	8%
	DPT/DT	88%	4%	7%
	Polio	88%	4%	7%
	Measles	77%	-	23%
Child 2:	BCG	93%	-	7%
	DPT/DT	88%	2%	10%
	Polio	87%	2%	11%
	Measles	82%	-	18%

.. if a child is overdue for a vaccination, ask:

- a) Do you know if any of the children are overdue for a vaccination?
Yes - 58%; No - 42%
- b) Why have they not been back for the vaccination?
1 - Makes child sick - 10%

- 2 - Thinks child already protected - 6%
- 3 - Too busy to go - 30%
- 4 - Too difficult to get there - 20%
- 5 - Child has been ill - 10%
- 6 - Other - 14%

c) What is the purpose of vaccination?

- 1 - Prevent disease - 63%
- 2 - Other - 2%
- 3 - No idea - 35%

d) Which diseases can be prevented by vaccination?

... no prompt, check answers ...

TB

diphtheria

pertussin, whooping cough

tetanus

polio

measles

know none - 39%; know 1 - 11%; know 2 - 15%; know 3 - 12%;
know 4 - 9%; know 5 - 3%; know 6 - 10%

e) At what age should a child receive
the first vaccination? Right-25%; Wrong-75%

f) Where would you take a child for
vaccination? Right - 73%; Wrong - 27%

MALARIA - BHU/RHC, OBSERVATION
195 observations

HW providing care: MO - 65%; Dispenser - 13%; Med Asst - 7%; MT - 6%;
Not recorded - 9%.

Where treated: BHU - 73%; RHC - 27%

1. Patient age
<1 = 6%; 1-4 = 20%; 5-14 = 28%; 15-45 = 34%; >45 = 10%
2. Patients sex M = 50%; F = 46%
3. History. Did HW ask:

	Yes	No
a) Duration of fever	96%	4%
b) Pattern of fever, 24 hours	59	41
c) Chills/sweats	52	48
d) Urinary complaints	18	82
e) Headache	25	75
f) Vomiting	37	63
g) Convulsions	4	96
h) Use of chloroquine during last 24 hours	5	95
i) Diarrhoea	21	79
j) Cough	50	50
k) Sore throat/runny nose	21	79
l) Ear pain	5	95
m) Joint pain or swelling	7	93
n) if woman, Asked if pregnant	0	100
4. Examination. Did the HW:

a) Take temperature	53	47
b) Examine ear, nose, throat	31	69
c) Examine neck for stiffness	6	94
d) Palpate abdomen	18	82
e) Examine skin	7	93
f) Ascultate lungs	54	46
5. Was slide made in field

a) if yes, was patient sent for results	4	96
b) if no, was slide made in clinic	1	99
	28	72
6. Did HW refer patient
Where _____
7. Did HW give correct prescription (including primaquine for non-pregnant, non-infant)
60 40
8. Did HW discuss

a) The importance of testing blood before starting medicine	6	94
b) How to take the medicine	52	48

- | | | | |
|----|--|----|----|
| c) | Need to take all the medicine | 21 | 79 |
| d) | When to come back (circle the correct mentions)
unconsciousness/drowsiness, jaundice,
fever for 2 days, return of fever w/in 3 wks | | |

None mentioned = 94%; 1 mentioned = 5%; 2 mentioned = 1%

- | | | | |
|----|--------------------------------|-----|-----|
| 9. | Did HW ask | Yes | No |
| a) | Patient to repeat instructions | 9% | 91% |
| b) | Patient if has any questions | 9 | 91 |

Note: The patients were provisionally diagnosed as Malaria cases and were given Antimalarial treatment.

DIARRHOEA - BHU/RHC, OBSERVATION
169 observations

HW observed: MO = 68%; MT = 9%; not recorded = 23%

Observation in BHU = 67%; RHC = 33%

1. Patient age
<1 = 28%; 1-4 = 40%; 5-14 = 8%; 15-45 = 13%; over 45 = 7%
2. Patients sex M = 44% F = 42%
3. History. Did HW ask:

	<u>Yes</u>	<u>No</u>
Duration of diarrhoea	90%	10%
Frequency of diarrhoea	82	18
Blood or mucous in stools	52	48
Vomiting	43	57
Fever 52	48	
Patient has been thirsty	24	76
Urine output greatly reduced	4	96
Treatment given at home	15	85
If infant, breastfeeding	23	77
4. Examination. Did HW

Take temperature	21	79
Examine mucous membrane of mouth	22	78
Check skin resilience	20	80
Take radial pulse	49	51
Touch fontanelle (infants only)	8	92
Examine eyes: sunken, no tears	17	83
5. Patient was:

1 - Treated at facility	- 2%
2 - Given prescription for home treatment	- 76%
3 - Not treated	- 17%
4 - Referred	- 1%
5 - Multiple (usually 1 and 2)	- 4%
6. Did the HW check to see whether patient could take fluids by mouth

	<u>Yes</u>	<u>No</u>
	12%	88%
7. Was the patient given

1 - ORS only	- 4%
2 - Antidiarrheals	- 10%
3 - Antibiotics only	- 2%
4 - IV rehydration	- 0%
5 - ORS and antibiotic or antidiarrheal	- 75%
6 - Nothing	- 10%

8.	What was used to measure the water?		
	1 - One liter container	- 1%	
	2 - Different container, but approx. 1 liter	- 1%	
	3 - Incorrect amount of water	- 0%	
	4 - ORS not prepared at clinic	- 98%	
		<u>Yes</u>	<u>No</u>
9.	Was the entire packet of salts used (note that the ORS was given in the clinic in only 2% of the cases)	1%	1%
10.	Was boiled or purified water used?	1%	1%
11.	Did the HW check the progress of rehydration		
	a) Examine mucous membrane of mouth	1%	1%
	b) Test skin resilience	1%	1%
	c) Examine fontanelle	1%	1%
12.	Did the HW:		
	a) Tell mother to use ORS at home	62%	38%
	b) Give instructions for mixing (of the cases where she was given ORS to use at home)	66%	34%
	c) Demonstrate proper mixing (of the cases where she was given ORS to use at home)	13%	87%
	d) Give instructions for administering (of the cases where she was given ORS to use at home)	26%	74%
	e) Tell to give extra fluids	33%	67%
	f) Tell how long to give ORS (of the cases where she was given ORS to use at home)	23%	77%
	g) Describe to patient at least 3 symptoms of dehydration from this list: lethargy, no tears, pinch skin, no urine, dry mouth, sunken eyes, sunken fontanelle	3%	97%
	h) Tell patient when to come back	29%	71%
	i) If infant, tell continue breastfeeding	42%	58%
	j) Instruct to discard solution at 24 hours (of the cases where she was given ORS to use at home)	18%	82%
13.	Did HW		
	a) Ask patient to repeat instructions or demonstrate	2%	98%
	b) Asked patient if he/she had any questions	6%	94%

VACCINATION - BHU/RHC, OBSERVATIONS
77 observations

Where observed: BHU - 3% RHC - 96%

1	Age of person to be vaccinated: 58% were under one year		
2.	Sex of person to be vaccinated M - 43% F - 56%		
3.	Did the HW consult a vaccination card?	Yes 80	No 20
4.	If no vaccination given, why not.		
	1 - Patient ill -		2 clients
	2 - Vaccine not available		
	3 - Syringes not available		
	4 - Mother refused		
	5 - Not due for vacc. -		2 clients
	6 - Other -		2 clients
5.	Which vaccines were given		
	DPT ₁ - 14; DPT ₂ - 11; DPT ₃ - 9		
	DT ₁ - 0; DT ₂ - 2; DT ₃ - 1		
	Polio ₁ - 9; Polio ₂ - 7; Polio ₃ - 9		
	Measles - 5		
	BCG - 11		
	TT ₁ - 18; TT ₂ - 9		
6.	Were sterile needles used for each injection	Yes 81%	No 19%
7.	a) Did HW warn mother that fever might occur?	34	64
	b) if TB, Did HW tell mother to leave wound alone? NA=88	6	5
7.	Did HW enter information (including birthdate)	86	14
8.	a) Did HW provide return information	77	23
	b) if child received DPT3, Polio3, was mother told to return for measles at 9 months NA82	16	2
9.	Did the HW ask the person		
	a) To repeat instructions	11	88
	b) If she/he had any questions	3	96

VACCINATION - SESSION SUMMARY

The following data come from the session summary. Here the observer recorded what happened in the vaccination session as a whole, not by individual client. Both clinic and community sessions were observed. A total of 68 sessions were observed

Where observed: BHU-9%; RIIC- 16%; COMM- 74%

1. Staff giving vaccination
 - 1 - Vaccinator - 77%
 - 2 - LHV - 3%
 - 3 - Both - 0%
 - 4 - Other - 4%
 - 5 - Vaccinator and someone else (e.g., CDCS) - 15%

2. Were sealed vaccines protected from

	Yes	No
a) Heat	96%	2%
b) Light	96	2

3. Were unsealed vaccines protected from

a) Heat	91	6
b) Light	96	2

4. What was done with used syringes during session
 - 1 - Discarded - 90%
 - 2 - Rinsed in water only - 2%
 - 3 - Boiled - 3%
 - 4 - Sterilized (autoclave) - 2%
 - 5 - Other - 2%
 - a) If discarded, how were they disposed of?
 - 1 - Burned - 0%
 - 2 - Needles broken - 2%
 - 3 - Collected in secure place for later transport - 85%
 - 4 - Other - 2%

5. What was done with opened vaccines at end of session
 - 1 - Discarded - 19%
 - 2 - Placed in refrigerator - 19%
 - 3 - Taken to another location in cold box for immediate use - 22%
 - 4 - Taken to another location at ambient temp. - 0%
 - 5 - Unknown - 4%
 - 6 - Other - 7%
 - 7 - Multiple of 1, 2, or 3 above - 24%

6.	Were the following supplies sufficient	Yes	No
a)	Vaccines	71%	27%
b)	Syringes	88	9
c)	Cards	90	8
d)	Cold box/refrigerator/ice	88	9

MPHW OUTREACH - OBSERVATIONS
853 observed interactions between MPHWS and villagers

FW observed: CDCS - 32%; Vaccinator - 59%; Other/unknown -9%

Malaria

1.	Did FW ask:	<u>Yes</u>	<u>No</u>
	a) Does anyone in the house have fever	35%	65%
	b) Has anyone had fever in the past week	14	86
	c) Duration of fever	31	69
	d) Variation in fever over last 24 hours	10	90
	e) Patient had chills/sweats	21	79
	f) Patient had urinary complaints	1	99
2.	Did the FW examine the patient	1	99
	if yes, did he		
	a) take temperature	1	99
	b) examine throat	1	99
	c) auscultate lungs	0	100
3.	Did the FW ask to take blood sample(if fever)	87	13
4.	a) If presumptive treatment begun, number tablets= it appears that a total of 72 people were started on presumptive treatment -- this out of a total of 130 who gave blood samples. The average dosage was four tablets; 13 percent of the suspected malaria cases were also given primaquine.		
	b) Did FW observe patient taking tablet?	<u>Yes</u> 56%	<u>No</u> 44%
5.	Did FW emphasize need to take all tablets	100	0
6.	Did FW tell others about chemoprophylaxis	1	99
7.	Did patient ask how to take medicine	71	29

Vaccination

8.	Did the FW ask if children under five years or pregnant women lived in the house? ... if none, go to question 18	55	45
9.	Did the FW consult or make a vaccination card?	70	30
10.	If no vaccination given, why not,		
	1 - Patient ill	3%	
	2 - Vaccine not available	2	
	3 - Syringes not available	0	
	4 - Mother refused	2	
	5 - Not due for vaccination	42	
	6 - Other _____	50	

These data are not believed to be reliable. The observers may have made errors in entering the data or entered it inconsistently; readers are advised to disregard the data for Q10.

11. Which vaccines were given (numbers are total injections)
 DPT₁ - 80; DPT₂ - 60; DPT₃ - 51; Booster - 17
 DT₁ - 4; DT₂ - 6; DT₃ - 7
 Polio₁ - 94; Polio₂ - 59; Polio₃ - 49; Booster - 18;
 Birth polio - 7
 Measles - 85
 BCG - 88
 TT₁ - 42; TT₂ - 17
12. a) Age of person vaccinated ___ months years 33
 .. 85% were under one year age.
 b) Sex of person vaccinated M - 51%; F - 49%
13. Were sterile needles used for each injection

<u>Yes</u>	<u>No</u>
88%	12%
14. a) Did FW warn mother that fever might occur? 29 71
 b) if TB, Did FW tell mother to leave wound alone? 34 66
15. Did FW record information on vaccinated person (including birthdate) 78% 22%
16. a) Did FW provide information on next vacc. 81 19
 b) if child received DPT₃, Polio₃, was mother told to return for measles at 9 months 50 50
17. Did the FW ask the person
 a) To repeat instructions 3 97
 b) If she/he had any questions 2 98
- Diarrhoea**
18. Did the FW ask if anyone had diarrhoea? 25% 75%
- a) if diarrhoea in house, Did FW provide ORS packets? Here we do not completely trust the way the data are recorded as it is not clear how many cases of diarrhoea were actually encountered. It is clear that the MPH_W gave out ORS packets in 166 of the 853 houses he visited; however that may have included some houses where no one had diarrhoea at the time.
- b) if yes, Did FW instruct in preparation and use of ORS? Again it is safest to note only that in 129 houses the MPH_W provided

instruction.

- c) if ORS not available, did FW instruct in prep. and use of salt & sugar solution? As before, it may be safest to note that in only 9 house visits of the 853 observed the MPHWS showed people how to make the home solution.

Observation of Field Supervision in the Community
192 observations

Sup. Title: EPI Inspector - 23%; CDCI - 30%; ASV - 13%; CDCO - 20%
 FW Title: CDCS - 19%; Vaccinator - 43%; MPHWS - 17%

1.	Supervisor visited home or site		
	1 - with FW	- 80%	
	2 - without FW (go to question 4)	- 20%	
2.	Supervisor		
	1 - Observed passively (go to question 5)	- 19%	
	2 - Provided demonstrations or training	- 12%	
	3 - Asked people in home or at site about past FW activities (go to question 4)	- 32%	
	4 - Both 2 and 3	- 37%	
			Yes No
3.	If supervisor demonstrated or trained, he		
	a) Gave motivational lecture on vaccination	14	86
	b) Administered vaccine	11	89
	c) Reviewed vaccination cards	75	25
	d) Took blood sample	18	82
	e) Took history for malaria	26	74
	f) Administered presumptive treatment if indicated	10	90
	g) Made entries in forms	33	67
	h) Prepared ORS or home salt & sugar sol.	4	96
	i) Other _____	4	96
4.	If supervisor asked clients about FW behavior, he		
	a) Asked about recency of FW visit	63	37
	b) Asked if FW inquired about presence of children under 5 or pregnant women	63	37
	c) Asked if FW promoted vaccination	38	62
	d) Asked if FW administered vaccinations	64	36
	e) Asked if FW informed where and when to obtain next vaccination	28	72
	f) Asked if FW inquired about fever	68	32
	g) If fever, did FW ask about pattern	15	85
	h) If fever, did FW take blood sample	42	58
	i) If fever, did FW give chloroquine	26	74
	j) Asked if FW inquired about diarrhoea?	53	47
	k) If diarrhoea, Asked if FW gave ORS?	44	56
	l) If yes, Asked if FW instructed in use and prep. of ORS or home sol.	21	79
	m) Other _____	3	97
5.	At conclusion of home visit, supervisor		
	a) Discussed case with FW	17	83
	b) Discussed FW performance with FW	15	85

**Observation of Meeting between MPH and Supervisor
37 meetings observed**

Sup. Title: EPI Inspector - 30%; CDCI - 27%; ASV - 11%; CDCO - 19%

FW Title: CDCS - 27%; Vaccinator - 60%; MPH - 8%

1.	Duration of meeting: 59% less than 15 minutes		
	1 - Scheduled	22%	
	2 - Unscheduled	68%	
2.	Topics discussed:		
	a) Quantitative achievements prior month	Yes	No
	i) Vaccination	32%	65%
	ii) ORS	14	84
	iii) Malaria	16	81
	b) Targets for coming month		
	i) Vaccination	16	81
	ii) ORS	3	95
	iii) Malaria	11	87
	c) Technical aspects of work		
	i) Correct vaccination dosages	16	81
	ii) Maintaining cold chain	35	62
	iii) Schedule of vaccinations	22	76
	iv) Administration of vaccine	19	78
	v) Sterilization or disposal of syringe	11	87
	vi) Handling opened vaccines	11	87
	vii) Promotion of immunization	22	76
	viii) Promotion of ORS	27	70
	ix) Preparation of salt & sugar sol.	0	98
	x) Follow up on malaria cases	11	87
	d) Problem cases	3	95
	e) Other technical aspects	3	95
3.	Activities:		
	a) Reviewed paperwork	49	49
	b) Checked supplies	32	65
	c) Conducted training or did demonstrations	46	51
	d) Asked FW to demonstrate skills	8	89
	e) Checked cold box/refrigerator	35	62
	f) Checked method of transporting vaccines	11	87

4.	If demo/trained, supervisor covered		
	a) Promotion of vaccination	28	72
	b) Administration of vaccine	28	72
	c) Maintaining cold chain	22	78
	d) Making entries in forms	50	50
	e) Taking blood sample	50	50
	f) Taking history	39	61
	g) Administering presumptive treatment	22	78
	h) Other training or demonstrations	0	100
5.	FW asked questions of supervisor		
	1 - Freely and often	-	11%
	2 - Occasionally	-	16%
	3 - Rarely and reluctantly	-	8%
	4 - Never	-	62%

EXIT INTERVIEW
715 interviews conducted of patients departing clinics

Where conducted: BHU- 69% RHC - 30%

1. Age of patient (interviewee may not be patient; e.g., patient's mother)
13% <1; 17% 1-4; 19% 5-14; 39% 15-45; 12% >45
2. Sex of patient: M - 38% F - 61%
3. Were you (or your child) immunized this visit Y - 8%; N - 92%
4. What did the HW tell you your problem was.
 - 1 - Malaria - 14%
 - 2 - Diarrhoea - 13%
 - 3 - Other - 52%
 - Don't know
if "don't know"
 - 4 - Did you have fever this wk? - 3%
 - 5 - Did you have freq. stools? - 1%
 - 6 - More than one problem - 11%

The interview was terminated if the patient had not been treated for one of the three health care areas of interest.

5. Malaria.

	Yes	No
a) Is it necessary to <u>test</u> the blood before taking the medicine?	41%	59%
b) Describe how to use the medicine.	Right 64%	Wrg 36%
c) Do you need to take all the medicine?	84	16
d) What would make you come back to the clinic? no prompts <ol style="list-style-type: none"> 1 - No improvement w/in 2 days - 81% 2 - Convulsions - 11% 3 - Severe vomiting - 5% 4 - Unconsciousness or drowsiness - 0.5% 5 - Jaundice - 2% 6 - two or more of above - 0.5% 7 - Other - 0% 		
e) Was a sample of blood drawn from you (in BHU/RHC/Community)	42	58
f) Were you told to go to another place? if yes, Where (1 - RHC, 2-Hospital)	0	100
6. ORS.
 - a) Are you supposed to use the ORS at home

	80	20
--	----	----

		Right	Wrong
b)	How do you mix it?	72%	28%
c)	When and how much should you take?	R	W
		63%	37%
d)	How long should you keep giving ORS?	R	W
		59%	41%
e)	Do you need to give other fluids too?	78	22
f)	if infant, Should you continue breastfeeding?	91	9
g)	if not infant, Should the patient continue to take regular foods?	89	11
h)	What would make you come back here?		
	. . . no prompts . . .		
	1 - Patient does "not get better" - 61%		
	2 - Mention of signs of dehydration - 0%		
	3 - Blood in stool - 0%		
	4 - Patient unconscious or very drowsy - 0.1%		
	5 - No urine for six hours - 0.3%		
	6 - Unable to drink - 0%		
	7 - two of above - 14%		
	8 - three or more of above - 9%		
	9 - Other - 12%		
i)	Were you referred elsewhere?	0.4%	99.6%

7. Immunization.

a)	If the child has a slight fever tomorrow, should you be concerned?	32	68
b)	if BCG: A small wound may form: should you leave it alone?	77	23
c)	When are you supposed to return?		
	1 - Correct - 69%		
	2 - Incorrect - 1%		
	3 - Doesn't know - 1%		
	4 - Not applicable - all series complete - 29%		
d)	What reminded you to come here for vaccination?		
	1 - Checked the card - 10%		
	2 - Family member or friend - 5%		
	3 - Heard announcement - 18%		
	4 - Visit of HW to home - 23%		
	5 - Other - 44%		
e)	Child's record is up to date for		
	DPT	78%	22%
	Polio	83	27
	Measles	53	47
	BCG	79	21
	Other info (birthdate, etc)	95	5
f)	(If course is incomplete) Is it necessary to return for vaccination?	93	7

OPERATIONS RESEARCH WORKSHOP

Islamabad Hotel, March 1-2, 1989

Primary Health Care Project
in conjunction with PRICOR (USA)

WORKSHOP OBJECTIVES

1. To introduce senior health officials in Punjab and others to the PRICOR approach to operational (i.e. problem-solving) research (OR).
 2. To review specific plans for the Punjab Task Analysis Study, scheduled to be carried out between March and September 1989 in the three Districts of Jhelum, Sargodha, and Sheikhpura.
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OPERATIONS RESEARCH WORKSHOP

Islamabad Hotel, March 1-2, 1989

**PRIMARY HEALTH CARE PROJECT
in conjunction with PRICOR (USA)**

LIST OF PARTICIPANTS

1. Dr. Mazahir Ali Hashmi, Director Health Services, Punjab
2. Dr. Zafer Ahmed, Deputy Dir. Gen., BHS, Islamabad
3. Dr. Abdul Irshad Butt, DDHS, BHS, Punjab
4. Dr. M. Rafique Ch., DDHS, EPI/CDD, Punjab
5. Dr. Mushtaq Ahmed, DDHS, Lahore Division
6. Dr. Javed Rasool Zar, DDHS, Rawalpindi Division
7. Dr. Mazhar Awan, DDHS, Sargodha Division
8. Dr. Aftab Ahmed Ch., DHO, Jhelum
9. Dr. Sahibzada Anwar A. Bughvi, DHO, Sargodha
10. Dr. M. Aslam Ch., DHO, Sheikhpura
11. Dr. Hakeem Khan, DDHS, Peshawar Division
12. Dr. Irfan Mir, DHO, Peshawar
13. Mr. Ray Martin, Chief HPN, USAID, Islamabad
14. Mr. Ismatullah Ch., WHO Operational Officer
15. Mr. Shamshad Qureshi, Programme Officer, UNICEF, Lahore
16. Dr. Richard Peeperkorn, Programme Officer, UNICEF, Islamabad
17. Dr. Jeanne S. Newman, Director, PRICOR Pakistan
18. Dr. Anwar Aqil, Technical Representative, PRICOR Pakistan
19. Dr. Irtaza A. Ch., Technical Representative, PRICOR Punjab
20. Mrs. Barbara Alling, Tech. Representative, PRICOR Mansehra

OPERATIONS RESEARCH WORKSHOP

PEARL CONTINENTAL HOTEL, LAHORE
August 16, 1989

WORKSHOP OBJECTIVES

1. To develop a further understanding of the data implication.
 2. To decide a strategy for further dissemination/or utilization of the results.
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OPERATIONS RESEARCH WORKSHOP

PEARL CONTINENTAL HOTEL, LAHORE
16 August, 1989

LIST OF PARTICIPANTS

1. Dr. Mazahir Ali Hashmi, Dir.Gen., Health Services Punjab (could not attend)
2. Dr. Zafer Ahmed, Deputy Dir. Gen. BHSC, Islamabad
3. Dr. Javed Rashid, Dir. P & D, Punjab (could not attend)
4. Dr. M. Rafique Ch., Director EPI/CDD, Punjab
5. Dr. Rustam Ali Bhatti, Director BHS, Punjab.
6. Dr. Furrukh H. Tirmizi, Director CDC, Punjab
7. Dr. Mushtaq Ahmed, DHS, Lahore Division
8. Dr. Mazhar Awan, DHS, Sargodha Division
9. Dr. Javed Rasool Zar, DHS, Rawalpindi Division
10. Mr. Ismatullah Chaudhry, Operational Officer, WHO
11. Dr. Michael Bernhart, PRICOR Consultant
12. Dr. Anwar Aqil, Tech. Representative, PRICOR Pakistan
13. Dr. Irtaza A. Chaudhry, Tech. Rep., PRICOR Punjab
14. Dr. Naeem Mian, Research Supervisor (could not attend)

OPERATIONS RESEARCH WORKSHOP

PEARL CONTINENTAL HOTEL, LAHORE

16 August, 1989

AGENDA

- 0800 Opening
- 0810 Research objectives - Dr. A. Aqil
- 0815 Research methodology - Dr. Irtaza A. Chaudhry
- 0825 Health situation, health education - Mr. Ismatullah Ch.
- 0855 Clinical management, Malaria - Dr. F.H. Tirmizi
- 0930 Clinical management, Diarrhoea, Vaccination - Dr. Rafique Chaudhry
- 1030 Tea
- 1045 MPHW activities and effectiveness - Dr. Rustam Ali
- 1145 Field supervision - Dr. Zafer Ahmed
- 1230 Factors associated with clinic utilization - Dr. Javed Rashid/Dr. M. Bernhart
- 1330 Summary and discussion of next steps
- 1400 Lunch
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**PUNJAB HEALTH DEPARTMENT/PRICOR PUNJAB
TASK ALLOCATION STUDY WORKSHOP**

10 September, 1989

PEARL CONTINENTAL HOTEL, LAHORE

OBJECTIVES

1. To disseminate the information obtained by PRICOR - Punjab Task Allocation Study to all the Divisional Directors Health Services in Punjab.
2. To discuss the draft report of PRICOR Punjab Task Allocation Study.
3. To discuss future line of action in the light of PRICOR Punjab Task Allocation Study.

OPERATIONS RESEARCH WORKSHOP

PEARL CONTINENTAL HOTEL, LAHORE
10 September, 1989

LIST OF PARTICIPANTS

1. Dr. Mazahir Ali Hashmi, Dir. Gen. Health Services, Punjab
2. Dr. Zafer Ahmed, Deputy Dir. Gen. BHS, Islamabad
3. Ms. Anne Arnes, Chief IIPN, USAID, Islamabad
4. Dr. Heathr Goldman, Deputy Chief HPN, USAID, Islamabad
5. Dr. Tara S. Upreti, PHC Project, USAID, Islamabad
6. Dr. Mohammed Rafique Ch., Director EPI/CDD, Punjab
7. Dr. Javed Rashid, Director Planning & Development, Punjab
8. Dr. Furrukh H. Tirmizi, Director Malaria, Punjab (Abroad)
9. Dr. Rustam Ali Bhatti, Dir. BHS, Punjab (could not attend)
10. Mr. Ismatullah Chaudhry, WHO Representative
11. Mr. Shamshad Qureshi, Programme Officer, UNICEF, Lahore
12. Dr. Mushtaq Ahmed, Dir. Health Services, Lahore Division
13. Dr. Javed Rasool Zar, Dir. Health Services, Rawalpindi Div.
14. Dr. Zamin Ali, Dir. Health Services, Bahawalpur Division
15. Dr. Rauf Beg Mirza, Dir. Health Services, Multan Division
16. Dr. M. Afzal Hashmi, Dir. Health Services, D.G. Khan Div.
17. Dr. Abdul Rashid Khan, Dir. Health Services, Gujranwala Div.
18. Dr. Bashir H. Kahloon, Dir. Health Services, F/abad Div.
19. Dr. Mazhar Khan, Dir. Health Services, Sargodha Division
20. Dr. Mohammed Hafiz, Asst. Director, EPI, Punjab
21. Dr. Jeanne S. Newman, Director PRICOR Pakistan
22. Dr. Irtaza A. Chaudhry, Tech. Representative, PRICOR Punjab
23. Dr. Naeem Mian, Research Supervisor

PUNJAB HEALTH DEPARTMENT/PRICOR PUNJAB
TASK ALLOCATION STUDY WORKSHOP
10 September, 1989

PEARL CONTINENTAL HOTEL, LAHORE

- 10:00 **Recitation from the Holy Guran.**
- 10:05 **Opening remarks** - Dr. Mazahir Ali Hashmi
Dir.Gen. Health Serv. Punjab
- Dr. Zafer Ahmed
Deputy Dir.Gen.BHS, Islamabad
- Dr. Heather Goldman
Project Officer, PHC, USAID
- 10:20 **Research Methodology** - Dr. Jeanne S. Newman
- 10:35 **Health Situation in Community:** - Dr. Irtaza A. Chaudhry
- Presentation of findings from Household Survey.
- Discussion.
- 11:05 **Malaria, Diarrhoea and Vaccination Clinic:** - Dr. Naeem Mian
- Presentation of findings from clinic observations and Exit Interviews.
- Discussion.
- 11:50 **Tea**
- 12:10 **MPHW activities in Field:** - Dr. Irtaza A. Chaudhry
- Presentation of findings from Field Observation.
- Discussion.
- 12:40 **Supervision of MPHW Activities:** - Dr. Naeem Mian
- Presentation of findings from correlation analysis.
- Discussion.
- 1:30 **Summary and discussion of program implications.**
- 2:30 **Lunch**
- 3:30-4:30 **Optional Session**

**LIST OF OBSERVERS/INTERVIEWERS FOR PRICOR
PUNJAB TASK ALLOCATION STUDY**

		TASK
1.	Dr. Michael Bernhart PRICOR Consultant	Overall supervision
2.	Dr. Anwar Aqil Technical Rep. PRICOR	Distl. supervision
3.	Dr. Irtaza A. Chaudhry Technical Rep. PRICOR	Distl. supervision
4.	Dr. Naeem Mian Research Supervisor	Distl. supervision
DPH STUDENTS		
5.	Dr. Gule Naukhez Ghauri Senior Medical Officer	Observation/Interviews
6.	Dr. M. Zaman Khan Niazi Asst. Dir. Health Services	"
7.	Dr. A. R. Tahir Company Physician	"
8.	Dr. Faiz Buksh Surani Medical Officer	"
9.	Dr. Javed Akhtar Qazi Casualty Medical Officer	"
10.	Dr. M. Zafer Iqbal Niazi Medical Officer	"
11.	Dr. Mohammed Hanif Asst. Chemical Examiner	"
12.	Dr. Naseer Ahmed Shah Senior Medical Officer	"
13.	Dr. Hafiz Mohammed Rafique Medical Officer	"
14.	Dr. Manzoor Ahmed Khushki Medical Officer	"

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| 15. | Dr. Shamsul Haq
Asst. Distt. Health Officer | " |
| 16. | Dr. Syed Abid Hussain Shah
Senior Medical Officer | " |
| 17. | Dr. M. Mohsin Abbas Naqvi
Asst. Distt. Health Officer | " |
| 18. | Dr. M. Akbar Qayum Baluch
Medical Officer | " |
| 19. | Dr. Nazir Ahmed Khawaja Khel
Demonstrator | " |
| 20. | Dr. M. Sohail Karimi Hashmi
Medical Officer | " |
| 21. | Dr. M. Sharif Qureshi
Pathologist | " |
| 22. | Dr. Mohammed Ali Malik
Medical Superintendent | " |
| 23. | Dr. Javed Ahmed Chaudhry | " |
| 24. | Dr. Ali Gohar
Medical Officer | " |
| 25. | Dr. Niaz Mohammed
Medical Officer | " |
| 26. | Dr. Capt.(Rtd) Sh. Nazer Husnain
Asst. Air Port Health Officer | " |
| 27. | Dr. Khalid Saleem
Medical Officer | " |
| 28. | Dr. Capt.(Rtd) M. Hussain Baluch
Medical Officer | " |
| 29. | Dr. M. Umar Shah
Medical Officer | " |
| 30. | Dr. Abdullah Tunio
House Surgeon | " |
| 31. | Dr. M. Amjad Hameed
House Surgeon | " |

FEMALE HEALTH WORKERS

32.	Ms. Kaneez Akhtar	FMT	Interviewer
33.	Ms. Rajab Khatoon	FMT	"
34.	Miss Ismat Sharif	FMT	"
35.	Miss Jamila Akhtar Dar	FMT	"
36.	Ms. Saira Parveen	FMT	"
37.	Ms. Shamsila Begum	FMT	"
38.	Miss Najma Nasreen	FMT	"
39.	Mrs. Zohra Saleem	FMT	"
40.	Ms. Shama Nusrat	Microscopist	"
41.	Ms. Abida Khanum	"	Could not take part till the end.
