PN-ACB-041
94671

OPERATIONS RESEARCH PROJECT ON IMPROVING PRIVATE PRACTITIONER CASE MANAGEMENT OF CHILDHOOD ILLNESSES: BIHAR, INDIA

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January 15, 1997

BASICS Technical Directive: 000-IA-00-015
USAID Contract Number: HRN-6006-C-00-3031-00

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ACKNOWLEDGMENTS

The author acknowledges the Kurji Operations Research Team's efforts towards making the trip successful. The author expresses her appreciation to Sister Grace and Sister Ann of Kurji Holy Family Hospital for their kindness and hospitality. Finally, she would like to thank the community health workers of Baratar and Pathariya health posts, the private practitioners, and members of *mahila mandals* who answered the authors's innumerable questions and helped her obtain a better and more complete understanding of the project.

ACRONYMS

ANM	Auxiliary Nurse/Midwife
ARI	Acute Respiratory Illnesses
BASICS	Basic Support for Institutionalizing Child Survival
CHW	Community Health Worker
DALYs	Disability-adjusted Life Yeats
GDP	Gross Domestic Product
IIHMR	Indian Institute for Health Management Research
IMCI	Integrated Management of Childhood Illnesses
IMR	Infant Mortality Rate
KHFH	Kurji Holy Family Hospital
NGO	Nongovernmental Organization
OR	Operations Research
ORS	Oral Rehydration Solution
PVO	Private Voluntary Organization
PVOH	Private Voluntary Organizations for Health
SPAA	Santhal Pargana Anthode Ashram
SSS	Sugar-Salt Solution
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

As consultant to the BASICS project, the author participated in the ongoing work related to an operations research (OR) study in the Dumka and Bettiah districts of Bihar, India. The objective of the OR study is to improve private practitioners' case management of childhood illnesses, particularly ARI, diarrhea, and fever. This goal will be achieved through an intervention focusing on training sessions for private practitioners, and contracting with the providers to practice targeted behaviors. The study is financed under the USAID-funded PVOH II project, and BASICS is providing technical assistance. The principal researchers are three PVOs—KHFH, SPAA. and Adhar—based in Bihar, India. The author's main responsibility as research coordinator to KHFH was to assist in the completion of the baseline assessment and initiating the process and final evaluation.

The data collection and univariate analysis for the baseline assessment has been completed and the intervention has begun. However, not all the objectives of the intervention have been met. For example although the practitioner training sessions on ARI, diarrhea, and fever have been organized, some of the goals defined for these training sessions were not met. The time spent on explaining all the case management behaviors was extremely short and as a result, practitioners are highly knowledgeable about some behaviors, and extremely ignorant about others. Also, the contracting with individual practitioners did not take place. This was due partly to the nature of the training sessions, which focused on the group as a whole. It was also due to the short duration of the sessions. However, during these sessions there were discussions with private practitioners regarding their role in community health, which has created an effective foundation upon which to pursue the contracting strategy.

In view of the aforementioned limitations of the group training sessions, the BASICS and Kurji OR team felt that additional activities would have to be undertaken to fully meet the research objectives. Based on discussions, several activities were recommended and subsequently incorporated into the activity plan. First, instead of focusing on all the integrated management of childhood illness (IMCI) behaviors, it was decided that it would be most effective to target a selected set of IMCI behaviors. Sixteen behaviors were chosen based upon appraisal of practitioner performance data from the baseline assessment. Second, a strategy was formulated for contracting with providers to encourage them to practice these behaviors. During January and February, community health workers (CHWs) will visit individual practitioners, provide the checklist of targeted behaviors, and contract with the providers to implement some or all of the behaviors.

According to the original plan for the OR study, CHWs will monitor practitioner behaviors by interviewing mothers. To guarantee cost-effectiveness, the CHWs will not visit individual households. Instead, they will attend village women's organization (*mahila mandal*) meetings. After obtaining this information about each provider, CHWs will match the information with the contract. The CHWs will convey the results of the evaluation to the practitioner. The monitoring

and feedback activities will be continuously implemented until the first week of March, after which the final evaluation survey will be conducted.

Activities related to the process evaluation were initiated. Indicators for the evaluation of each input were defined, and sources of data were identified. Since one of the inputs (group training sessions) had already been implemented, the process evaluation of this input was begun. Interviews regarding the training sessions were conducted with key informants (Kurji OR team), CHWs, and private practitioners. The results of these interviews indicate the participation rate for the group training sessions was high: 90 to 95 percent. All the practitioners interviewed felt that the training sessions had been extremely useful and they had learned many new facts. However, they also felt that the training sessions were extremely short. For example, the practitioners commented that the total amount of time spent on substantive issues (those relevant to the OR study) was only four to five hours. During January, more interviews with participants will be conducted which will either provide additional information or confirm existing results. Forms and protocols for the process evaluation of the other inputs have been drafted; however, these instruments will have to be finalized before March.

The activities outlined for the baseline assessment were only partially completed. This was due to the author's involvement in activities related to intervention and other factors. For example, it was realized that multivariate analysis of the data required obtaining case management scores for each practitioner. Since scoring is a technical exercise, it was decided that the multivariate analysis would be completed by the author after returning to the U.S. The univariate analysis of the baseline data was completed, and sections of the baseline assessment were written. It is expected that the baseline assessment will be completed, at the latest, by February 5, 1997.

Interviews with private practitioners and CHWs during the field trip indicate that the OR study has generated spill-over benefits such as "greater interaction between private providers and CHWs," and "practitioner motivation and interest in community health activities." There is no baseline data on these indicators, therefore, pre- and post-test comparisons will not be possible. However, this is no reason for ignoring documentation of these impacts and the author had extensive discussions with the Kurji OR team to formulate a strategy for capturing these effects. It was determined that these effects could be best captured through key informant interviews with CHWs and other members of the community, and narratives from several private practitioners. During January, the author will formulate instruments for quantitatively and qualitatively measuring these effects. In March, the author will return to Bihar to assist KHFH complete the final evaluation, undertake activities related to the process evaluation, analyze the data, and write final reports for the OR study.

PURPOSE

The author participated in this trip to undertake the following scope of work defined by BASICS, and approved by KHFH/India and IIHMR/India.

1. **Draft Baseline Assessment:** Draft full assessment report and carry out the following tasks required for drafting the report: (i) finish analysis of data working with Anthony John of the Kurji OR team; (ii) prepare tables and graphs; (iii) confirm methods actually used by interviewing persons involved in the research; and (iv) draft report for review by the Kurji OR team and BASICS.

2. **Initiate Documentation and Evaluation of Intervention Process:** (i) Identify indicators and evaluation method to be used; (ii) prepare forms/guides/materials in the field; (iii) revise as needed; (iv) train interviewers; (v) conduct interviews as appropriate; and (vi) document evaluation plans.

3. **Initiate Planning for Final Evaluation Survey/Interviews:** (i) Review final assessment instruments, and draft revisions for review; and (ii) if time permits, test draft revisions, and modify on the basis of the tests.

BACKGROUND

Since independence in 1947, India has made substantial progress in expanding the public health system. Partly as a result of these efforts, India's infant mortality rate (IMR) has been reduced from 137 per 1,000 live births in 1970 to 90 per 1,000 live births in 1991. Despite these achievements, India continues to face many public health challenges.

The leading sources of burden of disease in India measured in terms of disability-adjusted life years (DALYs) are maternal and perinatal causes (35 million DALYs), respiratory illnesses (33 million DALYs), and diarrheal diseases (28 million DALYs) (World Bank, 1995). Morbidity and mortality from childhood illnesses is not evenly distributed across India's 36 states and 9 union territories; some states, such as Kerala, have been very successful at reducing child mortality, while other states are lagging behind. Bihar is one such lagging state and has the second highest IMR and under-5 mortality rate in India. If India has to make progress in reducing the burden of disease from childhood illnesses, states such as Bihar must be targeted.

Table 2: Infant Mortality Rates and < 5 Mortality Rates: All India and Bihar (per 1,000 live births and per 1,000 < 5 children)

Area	Infant Mortality Rate	< 5 Mortality Rates
All India	79.5	109.3
Bihar	89.2	127.5

Source: Demographic and Health Survey, 1995

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Indian Health Policy and Financing

The government's health policy is based on the primary health care approach—providing free preventive and curative services to a large section of the population. Government spending on health is about 1.3 percent of the gross domestic product (GDP), which is lower than the spending of Bangladesh, Pakistan and Sri Lanka. Government services are highly inefficient, ineffective, and of poor quality. In the near future, additional public funds for expansion and maintenance of the public health system cannot be expected (World Bank, 1995). The challenge for Indian health policy and financing is to develop strategies that optimally utilize limited public funds and to generate additional resources, such as through the private sector.

The Role of the Private Sector

For most childhood illnesses, a significant percentage of households in India seek care from private practitioners (Rhode and Viswanathan, 1995). For example, in the areas where the OR study is based, an estimated 90 percent of households seek care from the private practitioners. Despite the strong presence of this group in managing childhood illnesses, little effort has been made in understanding how these practitioners can be involved in reducing the burden of disease from childhood illnesses. Yet, without fostering the participation of this group, sustainable reductions in this area cannot be expected. The most recent Indian national health policy has explicitly acknowledged the importance of the private sector in meeting child survival goals. It has recommended that the government formulate and test strategies for involving the private sector. In this context, the results of the OR study are extremely relevant for India.

TRIP ACTIVITIES

Between December 3, 1996 and January 1, 1997, the author participated in ongoing activities related to the private practitioners' OR research study in Bihar, India. During the trip, the following activities were undertaken and sites visited.

Working with the Kurji OR Team, Patna, Bihar

The majority of the author's time was spent working with the Kurji OR team in Patna. The work covered all areas assigned to the author under the scope of work (baseline report, process, and final evaluation).

Field Trips to Deoghar, Bihar

The author made two field trips to Deoghar, Bihar. The first field trip was held between December 3-5. The BASICS team, consisting of the author and Dr. Robert Northrup, was accompanied to the field by members of the Kurji OR team. The teams were met by members of the local PVO, SPPA, that is involved in the OR study. Three villages (Baratar, Bhoratar, and

Jamuya) were visited. In each village, the teams met with *mahila mandals* (women's organizations). Two private practitioners, one auxiliary nurse/midwife (ANM), and two CHWs were interviewed. The field trip was useful for obtaining information on the status of the OR project in Dumka District. The interviews with two private practitioners at the Baratar health post provided useful facts on the practitioner training sessions on ARI, diarrhea, and fever. The interview with women's organizations (*mahila mandals*) gave the teams insight into household demand for private practitioners and perceived quality. However, the field trip would have been more successful if less time had been devoted to non-OR study activities, such as non-formal education.

The second field trip was undertaken between December 20-22. The author and the field investigator from the Kurji OR team traveled to Deoghar for visits to the Baratar and Pathariya health posts. This field trip had several objectives. The first was to inform CHWs about the additions to the activity plan, to discuss the next steps of the intervention between January and early March, and to pre-test forms, protocols, and questionnaires for the intervention. The second objective was to interview CHWs about the research methodology for the baseline assessment. The third and final objective was to interview private practitioners about the group training sessions. All three objectives were met. At the Baratar health post, the team met with all six CHWs and four private practitioners. At the Pathariya health post, the team met with two out of four CHWs and four private practitioners.

The first part of the visit to each health post was devoted to discussing the interventions. Overall the CHWs understood the next steps of the intervention. There was some confusion among the CHWs regarding the targeted behavior checklist which was to be given to each practitioner and the contract which was to be completed by the CHW. To assist the CHWs in understanding the distinction, an extensive protocol was developed and translated into Hindi. Finally, the author did a role-play of the contracting, followed by a similar role-play between two CHWs. The results of the interviews regarding the research methodology and practitioner training sessions have been discussed in the next section (Results and Conclusions).

Additional Activities

Besides the activities assigned by BASICS, the author worked with the Kurji OR team in planning the next steps of the intervention. This included the drafting of an extensive activity plan, and discussion and finalization of this plan (Appendix A). To expedite implementation of the interventions, the author helped finalize a checklist of targeted behaviors. She also planned and implemented a CHW orientation session in Dumka (see section on field trip). Finally, the author formulated questionnaires and protocols for implementing the interventions.

RESULTS AND CONCLUSIONS

Baseline Assessment

Completing Data Analysis: The univariate analysis had been already completed. Due to several factors, the multivariate analysis of the baseline data could not be completed in Patna. First, the amount of time initially planned for baseline data analysis in the field was shortened due to the author's involvement in other activities related to the OR study. Second, multivariate analysis of home case management would have required obtaining scores for mothers and practitioners. This would have produced the "dependent variable" for the multivariate analysis. Scoring is a technical exercise and requires information from specialists. Therefore, this activity was postponed until January. Finally, some of the demographic information for the multivariate analysis of providers was not available. It was decided that this information would be collected by the Kurji OR team and sent to the author in Washington by January 25, making it possible to complete the baseline assessment, at the latest, by February 10.

Collecting Information on Research Methodology: Information for the section on research methodology was collected. Interviews were conducted with key informants (Kurji OR team members) and nine community health workers in Dumka. Although it was not possible to interview CHWs in Bettiah, the field investigator for Bettiah was interviewed. The information was useful for determining the type of sampling strategy that was adopted (stratified non-random sampling). The interviews also revealed that it was extremely difficult to obtain information on income due to the format which asked questions on total household income. In recognition of this fact, the interviewers changed the format and adopted a more indirect approach to questioning the respondents. This consisted of determining on the basis of observations and interviews, the total assets owned by the households. However, the author noticed that although the CHWs indicated that this had been their strategy, the results of the household survey had been entered in its original format. Therefore, caution needs to be exercised in interpreting some of household income data from the baseline assessment.

Create Tables and Graphs: Tables have already been created with the data from the univariate analysis (Appendix D). However, graphic representation of the data is yet to be completed. Additionally, as soon as the multivariate analysis is complete, more tables and graphs will be developed.

Draft Report: The introduction and write up of the univariate analysis has been completed (Appendix D). As soon as the rest the data is available, a first draft of the baseline assessment will be available.

Documentation and Evaluation of Intervention Process

Identify Indicators and Evaluation Method to Be Used: As per the author's terms of reference, indicators were identified for the process evaluation of each input. Data sources and how the information would be collected were also defined (Appendix C).

Prepare Forms/guides/materials in the Field: Forms for some of the inputs, such as the ARI, diarrhea, and fever group training sessions, were developed and pre-tested. Based on the pre-test, it was decided that the semi-structured interview should be adopted. Process evaluation forms for other inputs, such as the individual training sessions, monitoring of provider behaviors, *mahila mandals*, and village health teams, have been formulated, but need to be finalized before March.

Conduct Interviews: The author conducted interviews with key informants and eight participants regarding the ARI, diarrhea, and fever group training sessions. All the provider interviews were conducted in the Dumka District and represented approximately 33 percent of all participants in this district. The interviews indicated that participation at both group training sessions in Bettiah and Dumka were high (between 80-95%), although the participation rates in Dumka were higher. Ninety-nine percent of the participants interviewed felt that the training sessions were extremely short and much more could be gained from a longer session spanning four or five days.

From the discussion of case management practices, participants had retained specific information such as recommending ORS/SSS for diarrhea and using cotrimoxi for pneumonia. However, very few practitioners remembered other important behaviors such as doing a skin pinch for testing dehydration and using a watch or timer for testing respiration. The total time spent on discussing the behaviors was extremely short (only one to two hours). The group training sessions were useful in other respects and provided an opportunity for the CHWs and practitioners to interact and to discuss the role of practitioners in community health. During February, interviews will be conducted with the same number of providers in Bettiah. The results from these interviews will be used with the ones from Dumka to write the final process evaluation for the group training sessions.

Document Evaluation Plans: Documentation of evaluation plans is included in the process evaluation document (Appendix C).

Initiating Planning for the Final Evaluation Survey/Interviews

The author had extensive discussions with the Kurji OR team regarding the final evaluation surveys and interviews. First, since the intervention has been modified and is targeting specific behaviors, the discussion focused on whether the final survey should be modified to cover only these behaviors. Second, interviews with private practitioners and CHWs indicated that the study will potentially generate some additional benefits such as "greater interaction between the private providers and CHWs" and "enhanced motivation and interest in community health activities." Given the qualitative nature of these impacts, it was determined that these effects could be best

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captured through key informant interviews with CHWs and other members of the community, and narratives from several private practitioners. Finally, the baseline assessment of provider knowledge and attitudes was not completed and therefore, the final evaluation will not include the provider interviews. During January, the author will work on modifying existing forms and formulating new questionnaires and protocols.

RECOMMENDATIONS

(1) Despite the many constraints (time, lack of skilled staff), the project has made good progress. However, it is imperative that the Kurji OR team work very hard to meet the deadlines outlined in the activity schedule (Appendix A).

(2) The research design for this project pre- and post-tests. As is known, this design suffers from many threats to internal validity. Therefore, to make the information from the project accessible for various groups working on child survival (NGOs, policy-makers) some additional data-gathering efforts may be necessary. It is recommended that during the final evaluation, every effort be made to clearly delineate other interventions that are occurring simultaneously and describing the nature of these interventions. This strategy was adopted by the large ORS study undertaken in Egypt. Alternately, post-test data on a control group can be collected and compared with the final evaluation results from the intervention group.

(3) The data for the quantitative assessment of the OR study is excessively focused on one source—the household survey. To guarantee multiple sources of information about effects, extra data-gathering efforts will be necessary. The purpose of this data will not be to make quantitative comparisons with the baseline; therefore, qualitative techniques such as narratives based upon interviews with key informants and participants will be sufficient.

APPENDIXES

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APPENDIX A

ACTIVITY PLAN FOR TIMELY AND EFFECTIVE COMPLETION OF THE PVOH PRIVATE PRACTITIONER OPERATIONS RESEARCH PROJECT

ACTIVITY PLAN FOR TIMELY AND EFFECTIVE COMPLETION OF THE PVOH PRIVATE PRACTITIONER OPERATIONS RESEARCH PROJECT -- KURJI HOLY FAMILY HOSPITAL -- PATNA, BIHAR

Activities	Sub-activities	Person Responsible	Deadline and Status
Intervention --*Training and Contracting with providers through CHWs*	Finalize checklist of targeted behaviors.	SC*	Completed
	Develop questionnaire and contract for CHW encounter with provider	SC	Completed
	Develop protocol for CHW encounter with provider.	SC	Completed
	Translate protocol and questionnaire	OPV* and MV*	Completed
	Pretest questionnaire	SC, MV	Completed
	Conduct CHW orientation session in Dumka	SC, MV	Completed
	Send modified questionnaire and checklist to Dumka	OPV, MV	Dec. 24
	Begin intervention in Dumka	MV	Dec. 29-Jan. 6
	Conduct CHW orientation session in Bettiah	OPV, MV	By Jan. 3
	Implement the intervention in Bettiah.	CHWs, MV	Jan 5-14
	Collect encounter forms and contracts from Dumka	MV	Jan 16-18
	Collect encounter forms and contracts from Bettiah	AJ	Jan. 16-18
Activities	**Sub-Activities**	**Persons Responsible**	**Deadline and Status**

Intervention -- *-Monitoring of provider case management*	Develop monitoring form	SC	Completed
	Translate forms	OPV, MV	Completed
	Give forms to CHWs and hold monitoring orientation session in Dumka	DC, OPV, MV	Jan.17
	Begin monitoring through CHWs in Dumka	CHWs (MV)	Jan. 18 -Feb. 28
	Collect monitoring forms from CHWs in Dumka	DC, OPV, MV	During field visits between Jan. 14-Feb. 28
	Give forms to CHWs and hold monitoring orientation session in Bettiah	OPV, AJ	Jan.24
	Begin monitoring through CHWs in Bettiah	CHWs (AJ)	Jan. 28 - Feb. 28
	Collect monitoring forms from CHWs in Bettiah.	OPV, AJ	During field visits between Jan. 28- Feb. 28
Intervention -- *CHWs return to providers after monitoring*	Draft questionnaire for repeat CHW encounters with providers	SC	Completed
	Translate questionnaire	OPV, MV	Completed
	Finalize questionnaires for each provider after completion of first CHW-provider interaction and monitoring sessions in Dumka and Bettiah	CHWs, DC, OPV, MV, AJ	Jan. 25 (Dumka), Feb. 4 (Bettiah)
	Start returning to providers with info. from mahila mandals in Dumka and Bettiah	CHWs, OPV, MV	Between Jan 18- Feb.28 (Dumka), Jan. 28 - Feb. 28 (Bettiah)
	Collect forms from CHWs in Dumka and Bettiah	OPV, MV, AJ	During field visits to Dumka and Bettiah

Activities	Sub-Activities	Persons Responsible	Deadline and Status
Baseline data analysis and Report Writing	Univariate analysis Get information on provider characteristics	AJ, SC OPV	Completed Jan. 15
	Score maternal and provider case management behaviors for multivariate analysis	SC	Jan. 25
	Multivariate analysis	SC	Feb.5
	Conduct interviews among CHWs, and other key informants about research methodology	SC	Completed
	Make tables, charts and graphs	SC	Feb.10.
	Report-writing	SC	Feb.10

Process Evaluation	Develop indicators for process evaluation	SC	Completed
	Finalize indicators for process evaluation	SC	Completed
	Develop evaluation methodology	SC	Completed
	Finalize evaluation methodology	SC	Completed
	Develop questionnaires and forms for process evaluation	SC	Completed
	Conduct interviews with key informants and program participants	OPV, SC	Some completed, more in Jan. - Feb.
	Conduct interviews among CHWs regarding the encounter sessions and the monitoring	OPV, MV, AJ	Jan.-Feb.
	Interviews with mahila mandal members, more providers and key informants	SC, OPV, MV, AJ	March 17 - 24
	Collate and analyze data for process evaluation	AJ, SC	March 26 - April 2
	Write process evaluation report	SC	April 2 - 22
Activities	**Sub-Activities**	**Persons Responsible**	**Deadline and Status**

Final Evaluation	Discuss modifications to final evaluation.	OPV, SC	Completed
	Draft modifications to final evaluation	SC	Completed
	Confer with RSN and finalize	SC	Jan.25
	Translate forms into Hindi	OPV MV	February 15
	Conduct household survey	OPV, MV, AJ	March 7 - 28
	Conduct provider interviews, and other key informant interviews	DC, SC, OPV, MV, AJ	March 16 - 31
	Input data	AJ and other	March 14- April 4
	Analyze data	AJ, SC	April 6 - 15
	Write final report	SC with input from Kurji OR team, SPAA, Adhar	April 10 - 22

*Sarbani Chakraborty (SC), Anthony John (AJ), Robert S. Northrup (RSN), Manoj Verma (MV), Om Prakash Verma (OPV) (in alphabetical order)

APPENDIX B

CHECKLIST OF TARGETED BEHAVIORS FOR CHW INDIVIDUAL SESSIONS WITH PRIVATE PRACTITIONERS

CHECKLIST OF TARGETED BEHAVIORS FOR CHW INDIVIDUAL SESSIONS WITH PRIVATE PRACTITIONERS

All Cases -- Information-Giving and Counseling

1. Give information about danger signs and what to look for to seek care
2. Inform mother of how to take each medicine
3. Recommend breast-feeding the child
4. Gave the mother a chance to ask questions

All Diarrhea Cases

5. Ask about use of SSS or ORS at home by mother before consultation
6. Recommend fluids
7. Give information about how to mix ORS
8. Recommend giving diet as usual, or more often than usual

All ARI Cases

9. Uses a watch or timer to measure the frequency of respiration.
10. Take-off shirt to see chest, for signs of chest in drawing.
11. Take temperature with a thermometer.
12. Inform mother about the danger signs to look for and to seek care.

All Fever Cases

13. Take temperature with thermometer.
14. Give anti-fever medicine.
15. Recommend bathing the child in tepid water.
16. Recommend giving lots of fluid.

APPENDIX C

PROCESS EVALUATION

PROCESS EVALUATION: IMPROVING PRIVATE PRACTITIONER CASE MANAGEMENT OF CHILDHOOD ILLNESSES (OPERATIONS RESEARCH) -- DEOGHAR AND BETTIAH DISTRICTS (BIHAR, INDIA)

A. Introduction and Purpose of the Process Evaluation

Process evaluations, also referred to as diagnostic studies are critical for obtaining information on the internal and external factors affecting implementation, and subsequently project outcomes. Typically process evaluations are based upon the results of continuous monitoring. For example, if monitoring indicates that program targets are not being met, or that the quality of the inputs are poor, then process evaluation studies are conducted to determine the reasons. Although, the Bihar operations research study has a system of continuous monitoring, it is mainly quantitative and does not focus on the quality of the inputs. Therefore, the process evaluation has two goals: (i) to formulate basic indicators for measuring whether the quantitative and qualitative objectives for each input were achieved; (ii) in case the objectives were not accomplished, identifying internal and external factors that may have affected the achievement of the objectives.

B. Indicators for Monitoring Achievement of Inputs

Methodology for identifying Indicators The methodology consisted of the following steps:
(i) clarifying the inputs for the intervention, (ii) defining the objectives of each input, (iii) using the objectives to define quantitative and qualitative targets.

Inputs The intervention consists of the following inputs: (i) training sessions and contracting with providers, (ii) one-to-one training sessions and contracting with providers conducted by CHWs, (iii) monitoring sessions with *mahila mandals* conducted by the CHWs, (iv) use of monitoring information to provide feedback to the providers and the village health team. The intervention has several organizational inputs (mahila mandals, providers groups, and village health teams) that are required for the intervention to successful and sustainable.

B1. Indicators for Group Provider Training Sessions (Diarrhea and ARI)

Objectives To orient local health providers to case management practices, negotiate and contract with providers regarding the practice of these behaviors. To achieve optimal impact, high rates of participation (in terms of numbers present, and involvement in discussions) is necessary.

Participation

Indicator Participation rates for local health providers.

Sources of Data Review of records from training sessions (secondary), CHW interviews with providers during reinforcement training sessions (primary).

Discussion of Diarrhea and ARI Case Management Behaviors

Indicator Percentage of providers and key informants corroborating that a complete specific behaviors that were discussed -- sunken eyes --- discussion of diarrhea and ARI case management

Sources of Data CHW interviews with providers during reinforcement session (primary), interviews with key informants such as trainer/facilitator, implementation agency personnel (primary). Records from the training sessions (secondary).

Opportunities for Asking Questions/Discussions

Indicator Percentage of those attending the training session and other key informants (such as project staff) testifying this to be the case.

Sources of Data CHW interviews with providers during reinforcement session (primary), interviews with key informants such as trainer/facilitator, implementation agency personnel (primary). Records from the training sessions: what % of the participants actually participated, % of time devoted to discussion -- characterize discussion -- how did the facilitator run the group discussions.

Contracting with the providers

Indicator Percentage of those who attended the training session verbally agreed to adhere to or signed a contact.

Sources of Data CHW interviews with providers, interviews with key informants (primary). Review of training records (secondary).

Analysis Using these indicators, the reasons for achieving or not achieving the training objectives will have to be analyzed in detail. Information, such as reasons for not attending the training session, and overall impressions of practitioners regarding the training seminars will be included in the forms for CHW interviews with providers. The final analysis will consist of quantitative information (derived from indicators), and a few practitioner narratives regarding the training session.

B2. Indicators for the CHW Sessions with Providers that Attended Both Group Training Sessions

Objectives The reinforcement training has specific objectives for each category of providers (attended both training sessions, attended one training session, attended none). For the first group, the goal is to reinforce the same ideas. For the second group, the objective is to reinforce the same concepts, and introduce new behaviors. For the third category of providers, the goal is to provide an overall orientation to the targeted behaviors.

Participation

Indicator Participation rates for providers

Sources of Data CHW records, and interviews with a statistically representative sample of providers.

Description of what the checklist is and how it can be used

Indicator Percentage of a sample of providers testifying that the checklist and its uses were described and explained.

Sources of Data Process evaluation of CHW session completed through interviews with a statistically representative sample of providers.

Contracting with the providers

Indicator Percentage rates of providers verbally agreeing to adhere to or signing a contact.

Sources of Data CHW records from reinforcement sessions.

B3. Indicators for the CHW Sessions with Providers that Attended One Training Session

Participation

Indicator Participation rates for providers.

Sources of Data CHW records, and interviews with a statistically representative sample of providers.

Description of targeted behaviors for training session not attended

Indicator Percentage of providers who received description of behaviors for training seminars not attended.

Sources of data Interviews with a statistically representative group of providers (primary), CHW records (secondary).

Description of what the checklist is and how it can be used

Indicator Percentage of a sample of providers testifying that the checklist and its uses were described and explained.

Sources of Data Interviews with a statistically representative sample of providers (primary).

Contracting with the providers

Indicator Percentage of those who attended the training session verbally agreed to adhere to or signed a contact.

Sources of Data CHW records (secondary).

Obtaining Reasons for Refusing to Contract

Indicator Percentage of providers who refused to contract and provided a reason

Sources of Data CHW records (secondary).

B4. Indicators for the CHW Sessions with Providers that Did not Attend any Training Sessions

Participation

Indicator Participation rates for providers.

Sources of Data Interview forms completed by CHW (secondary)

Description of targeted behaviors

Indicator Percentage of providers who received description of behaviors for training seminars not attended.

Sources of data Interviews with providers (primary), review of process evaluation form for reinforcement, form completed by CHWs (secondary).

Description of what the checklist is and how it can be used

Indicator Percentage of providers testifying that they understood what the checklist was about and its uses.

Sources of Data Interviews with a random sample of providers (primary).

Contracting with the providers

Indicator Percentage of providers verbally agreeing to or signing the contract.

Sources of Data CHW records (secondary).

Obtaining Reasons for Refusing to Contract

Indicator Percentage of providers who refused to contract and provided a reason

Sources of Data Review of training records (secondary).

B5. Indicators for Monitoring of Provider Behaviors through *Mahila Mandals*

Objective The overall objective of this input is to guarantee that *mahila mandals* are informed about appropriate case management behaviors, and the importance of monitoring provider behaviors. A third objective is to ensure that CHWs regularly collect information on practitioner behaviors from the *mahila mandals*. This input presupposes that mahila mandals are functioning organizations that meet regularly.

Participation rates

Indicator Percentage of women in each village participating regularly in *mahila mandals*

Source of Data Interviews with a randomly selected sample of *mahila mandals*, and key informants in each village (primary)

Description of Targeted Behaviors

Indicator Percentage of *mahila mandals* testifying that CHWs described and explained the targeted behaviors.

Source of Data Interviews with a sample of randomly selected *mahila mandals* (primary), review of CHW records (secondary)

Explanation of the Importance of Involving Mahila Mandals in Monitoring

Indicator Percentage of *mahila mandals* corroborating that CHWs explained the importance of involving *mahila mandals* in monitoring.

Sources of Data Interviews with a sample of randomly selected *mahila mandals* (primary), and review of CHW records.

CHW Collection of Information from Mahila Mandals

Indicator Percentage of *mahila mandals* testifying that CHWs collected information on practitioner behaviors from the mandals.

Sources of Data Interviews with a randomly selected sample of *mahila mandals* (primary), and review of CHW monitoring forms.

B6. Feedback of Information to Providers

Objective CHW uses monitoring information to provide feedback to providers.

Indicator Percentage of providers reporting that CHW gave feedback.

Source of Data Interviews with a randomly selected sample of providers (primary), review of CHW records.

APPENDIX D

IMPROVING PRIVATE PRACTITIONER CASE MANAGEMENT OF CHILDHOOD ILLNESSES

IMPROVING PRIVATE PRACTITIONER CASE MANAGEMENT OF CHILDHOOD ILLNESSES: OPERATIONS RESEARCH PROJECT (BIHAR, INDIA) -- BASELINE ASSESSMENT AND ANALYSIS REPORT

A. Introduction and Objectives of the Baseline Assessment

A1. Background

Global child survival efforts have demonstrated that reducing the burden of disease from childhood illnesses such as ARI, diarrhea and fever require a three-pronged approach. First, improving mothers' home case-management practices. Second, guaranteeing that mothers recognize the signs of severe illness, and seek care in a timely manner. Third, improving availability and access to effective health services. Improving mothers' case management practices entails information, education and communication through media that mothers trust and have confidence in. Guaranteeing that health services follow established guidelines for case management of childhood illnesses will ensure effectiveness.

For most childhood illnesses, a significant percentage of households in India seek care from private practitioners. Typically these practitioners are not formally trained in medicine. They are highly available and accessible and in high demand because of their capacity to dispense drugs (Berman and Rose, 1996, Rhode and Viswanathan, 1995). However, despite the strong presence of this group in managing childhood illnesses, little efforts have been made in understanding the effectiveness of the care provided by these practitioners, or how they can be involved in reducing death and disability from common childhood illnesses. Yet, without fostering the participation of this group, sustainable reductions in the burden of disease from childhood illnesses cannot be expected. The objective of the proposed operations research project is to study the effect of interventions focused on improving practitioners' case management in childhood illnesses, and involving them in educating mothers about home case management. Such an intervention would also be cost-effective and sustainable since it would be using existing self-sufficient public health resources.

The study is based in the *Dumka* and *Bettiah* districts of **Bihar**, India. These two districts are ideal for the study in many respects. First, infant and child mortality rates in Bihar are higher than all-India rates. Within Bihar, Dumka and Bettiah are two areas that have extremely poor infant and child mortality indicators. To reduce the burden of disease from childhood illnesses, states such as Bihar, and specially poor performing districts such as Bettiah and Dumka must be targeted.

Table 1: Infant Mortality Rate and < 5 Mortality Rates: Comparison of All-India, Bihar State, and Deoghar and Bettiah Districts in Bihar State

Area	Infant Mortality Rate	< 5 Mortality Rates
All India	79/1000 live births	109/1000 children
Bihar	89/1000 live births	128/1000 children
Dumka	To be completed	To be completed
Bettiah	To be completed	To be completed

Second, anecdotal evidence from *Deoghar* and *Bettiah* indicates that for childhood illnesses, the majority of households seeks care from private practitioners. Therefore, these areas are ideal for undertaking a demonstration project on how to involve private practitioners in improving the burden of disease from childhood illnesses. These private practitioners are extremely available and accessible, and provide health services in remote rural areas. However, there is no information about the effectiveness of the services provided by these practitioners. Additionally, if private practitioners have to be involved in educating mothers about home case management, information is needed about current management practices in the two districts. The objectives of the baseline assessment are as follows.

(i) To assess mothers' home case management practices for childhood illnesses, particularly diarrhea and ARI.

(ii) To estimate utilization of private practitioners.

(iii) To determine providers' case management practices for childhood illnesses, particularly diarrhea and ARI.

(iv) To use this information to formulate a cost-effective community-based intervention which would target both mothers' and provider' case management practices.

B. Research Methodology

The original plan was to derive information for the baseline assessment from three sources: (i) mothers, (ii) private practitioners, and (iii) key informants such as government health officers, and leaders of village-level organizations including *mahila mandals*. This would have provided the necessary safeguards against information bias. The information was to be collected through a combination of quantitative and qualitative research techniques such as semi-structured interviews, narratives, and focus group discussions.

Due to a variety of factors such as time constraints, and shortage of skilled staff, the original plan could not be executed in its entirety. The key informant interviews were never conducted. The practitioner interviews were undertaken, and provide useful information on the characteristics of these practitioners such as age, education, professional training and years of education. However, the questionnaire for practitioner interviews did not include a section on practitioner knowledge about case management practices for childhood illnesses. As a result, the main source of information for the baseline assessment is a household survey completed over a period of three weeks during June-July, 1996.

B1. *Household Survey*

Purpose The purpose of the household survey was to obtain information on the prevalence of childhood illnesses such as diarrhea, ARI and fever, determine mothers' knowledge about home case management practices for diarrhea, ARI and fever, and obtain information on case management of childhood illnesses by practitioners.

Survey Instrument The main survey instrument was the Verbal Case Review or Sick Child Audit by mothers. The format was in the form of a questionnaire, and the information was to be collected through semi-structured interviews and narratives. This questionnaire was originally developed under the BASICS Project, and has been used for assessing mothers' and providers' case management practices in Indonesia, and elsewhere in India (Churu, Rajesthan). The questionnaire includes over 14 pages of questions on the household, and mothers' and practitioners' case management practices for ARI, diarrhea, and fever. The latter was developed using WHO guidelines for the management of childhood illnesses at the household and health systems level.

This original questionnaire was not pre-tested, but soon after conducting a few interviews, it was modified to suit the research environment. For example, according to this original questionnaire, for each under-five child in the household, information on home and practitioner case management was to be collected. A complete section on each child consisted of 14 full-length pages. Therefore for five children, the interviewer would have to complete 70 pages. This was found to be an unfeasible proposition given that due to time constraints mothers were unwilling to even answer all questions for one child. Therefore, it was decided that questions would be asked on only one <5 child.

Secondly, it was found after conducting a few interviews that it was extremely difficult to obtain income information because of the manner in which the questions were phrased. The questions were mostly phrased in terms of how much do you earn? How much do you spend on food, medicine etc? Therefore, the income questions were subsequently modified to determine what assets the household has? For example, how much land did they own? Did they own a tractor? Did they hire laborers to work in the field?

Sample Size Calculation and Sampling Techniques A stratified non-random sampling methodology was applied. Stratification was necessary because only mothers with children under-five, who had been sick in the last two weeks or a month were interviewed. In each intervention area (Deoghar and Bettiah), it was anticipated that 300 households would be interviewed. In Deoghar, six households in 50 tollas (10 villages) were interviewed, and in Bettiah, five households in 60 tollas (11 villages) were interviewed. There was no formal system for random selection of households such as a numbering system. Rather the survey team entered the village, spoke with key informants and started visiting households with < 5 children. In each household, it was asked whether any children in the household had been sick in the last month or the last two weeks. Once these criteria were met, the household was interviewed.

Training and Orientation Sessions For CHW The CHWs were already familiar with survey research techniques since they had undertaken such activities under PVOH II. Therefore, they only required a short training/orientation session to acquaint them to the objectives of this project, and the questionnaires.

Total Duration of Survey Approximately three weeks. The CHWs felt that one month would have been better.

Data Inputting and Analysis The data was inputted using EpiInfo 6 (1994 version), and was subsequently analyzed.

Additional Comments During the survey, the CHWs and the research investigator in Deoghar met constantly to discuss problems, and approaches to solving the problems. For example, the CHWs found that it was very difficult to obtain answers for some questions such as the types of
medicines prescribed by doctors. This was discussed, and the CHWs and research investigator felt that the question should have focused on asking the type of medication prescribed (injections, pills, syrups).

B2. Provider Interviews and Observations

Problems A total of twenty local health providers (10 in Bettiah and 10 in Deoghar) were interviewed. The purpose of the interviews was to obtain information on the demographic characteristics of the providers, and cross-validate the information regarding practitioner surveys obtained during the household survey. However, only six out of the twenty providers interviewed were the same as those chosen by the households. This has made cross-validations with the household survey extremely difficult. Also, no observations were conducted.

C. Results and Analysis

C1. Demographic Characteristics and Socio-economic Status of Respondents in Target Areas

Table 2.1: Demographic and Socio-Economic Status -- Deoghar Bettiah and Combined for Total Intervention Area (percentage of respondents in each category)

Type of Characteristics	Bettiah	Deoghar	Aggregate
Age	*n=299**	*n=301*	*n=600*
16- 20 yr.	5% (14)	13% (40)	9% (54)
21-25 yr.	37% (110)	36% (108)	36%(218)
26- 30 yr.	36% (109)	28% (83)	32%(192)
31 - 35 yr.	15% (46)	18% (55)	17% (101)
36- 40 yr.	2% (7)	3% (10)	3% (17)
41- 45 yr.	3% (9)	5% (2)	2% (11)
45 and above	1% (4)	.66% (3)	1% (7)
Income Status	*n=290**	*n=295**	*n=585**
<Rs.1000 per month	47% (136)	71% (211)	58% (347)
>Rs.1000 but < Rs.1500	23% (66)	16% (48)	19% (114)
>Rs.1500 but < Rs.2000	15% (43)	5% (16)	12% (69)
>Rs.2000 but < Rs.2500	7% (20)	0.33% (1)	4% (21)
>Rs.2500 but < Rs.3000	2% (5)	1% (3)	1% (8)

Rs.3500 and above	7% (20)	5% (16)	6% (36)
Type of Housing	***n= 299****	***n=296****	***n= 595****
Mud house	80 % (238)	66% (195)	72% (433)
Khapra house	13% (39)	32% (95)	23% (134)
Concrete	7% (22)	2% (6)	5% (28)
Education levels	***n=296****	***n=296****	***n= 592****
Illiterate	83% (247)	80% (236)	81% (483)
Literate	6% (19)	14% (40)	10% (59)
Primary	6% (17)	2% (7)	4% (24)
Middle	3% (8)	3% (8)	3% (16)
Matric or above	2% (6)	2% (5)	2% (11)

*Excludes respondents who did not answer these questions

Table 2.2: Recognition of Illness (Diarrhea): Bettiah, Deoghar Districts and Aggregate Results from the Intervention Areas -- percentage agreeing

Type of Sign for Illness Recognition	Bettiah (n=151)	Deoghar (n=144)	Aggregate
Change in appetite	87%	93% (134)	90%
Change in activity -- play less	46% (69)	85% (123)	66% (192)
Feel tired -- lie down -- no play	64% (97)	76% (110)	70%(207)
Fever	51% (75)	72% (104)	6%(179)
Change in consciousness, fits/convulsions	7% (11)	11% (16)	9%(27)
Persistence of symptom or sign	26% (39)	29% (42)	28%(77)
Vomiting	36% (55)	67% (96)	52%(151)
Change in stool color	55% (83)	72% (105)	94%(188)
Change in stool frequency, volume	37% (56)	65% (93)	51%(149)
Blood in stool	13% (20)	16% (23)	15%(143)

Table 2.3: Recognition of Illness (Fever) Bettiah, Deoghar Districts and Aggregate Results from the Intervention Areas -- percentage agreeing

Type of Sign for Illness Recognition	Bettiah (n=216)	Deoghar (n=249)	Aggregate n=465
Change in appetite	65% (140)	88% (218)	77%(358)
Change in activity -- play less	56% (121)	82% (203)	69% (324)
Feel tired -- lie down -- no play	72% (156)	74% (184)	73%(340)
Fever	77% (166)	94% (233)	85% (399)
Change in consciousness, fits/convulsions	7% (16)	8% (20)	8%(36)
Persistence of symptom or sign	26% (57)	26% (64)	26%(121)
Vomiting	28% (60)	31% (78)	30%(138)

Table 2.4: Recognition of Illness (Respiratory Illnesses) Bettiah, Deoghar Districts and Aggregate Results from the Intervention Areas -- percentage agreeing

Type of Sign for Illness Recognition	Bettiah (n= 145)	Deoghar (n=208)	Aggregate n=353
Change in appetite	29% (42)	89% (186)	86%(228)
Change in activity -- play less	43% (62)	82% (170)	63%(232)
Feel tired -- lie down -- no play	75% (108)	74% (153)	75%(261)
Fever	64% (92)	91% (190)	78%(282)
Change in consciousness, fits/convulsions	9% (13)	9% (18)	9%(31)
Persistence of symptom or sign	30% (44)	25% (52)	28%(96)
Vomiting	28% (40)	32% (66)	30%(106)
Cough	37% (54)	82% (170)	60%(224)
Nasal Discharge	27% (39)	49% (102)	38%(141)
Ear ache/ear discharge (otitis media)	9% (13)	16% (34)	13%(47)
Trouble breathing	11% (16)	51% (106)	31%(131)
Fast Breathing	11% (16)	34% (70)	23%(86)

Table 2.5: Home Treatment (Diarrhea, ARI, Fever): Bettiah, Deoghar Districts and Aggregate Results from the Intervention Areas

Type of Home Treatment	Bettiah	Deoghar	Aggregate
Liquids/fluids	***n=253****	***n=286****	**n=539**
Increased volume	28% (71)	42% (119)	35%(190)
Gave the same volume as before	66% (166)	51% (145)	59%(311)
Decreased volume	6% (15)	6% (18)	6%(33)
Withhold fluids	0.4%(1)	1% (4)	.70%(5)
Breastfeeding (only for children still breastfeeding)	***n=190*****	***n=230***	**n=420**
During illness breast-fed as before	67% (127)	48%(111)	58%(238)
During illness breast-fed more	10% (19)	16% (36)	26%(55)
During illness breast-fed less	20% (38)	23% (53)	22%(91)
During illness stopped breastfeeding	3% (6)	13% (30)	8%(36)
Diet (only for children who are eating)	***n= 184*****	***n= 262*****	**n=446**
Diet/food same as before	66%(122)	21%(54)	44%(176)
Diet/food changed during illness	34%(62)	79%(208)	57%(270)
Frequency of feedings (only for children already feeding)	***n=200***	***n=175***	n=375
Number of feedings did not change	10%(19)	9%(15)	9%(34)
Fed less frequently	57%(114)	54%(94)	56%(208)
Fed more frequently	33%(67)	38%(66)	36%(133)
Home Fever Care	***n=216***	***n=248***	**n=464**
Gave tepid bath	75% (161)	68% (169)	72%(330)
Gave bath/sponged with cool water	18% (38)	65% (161)	42%(199)
Removed clothing	32% (70)	82% (204)	57%(274)
Gave pain tablets	43% (93)	37% (91)	40%(184)
Gave fever medicine	20% (43)	24% (59)	22%(102)
Gave malaria medicine	21% (47)	10% 24)	16%(71)
Gave antibiotic	7% (14)	13% (32)	10%(71)
Gave herbal/traditional medicine	10% (21)	22% (55)	10%(76)
Home Diarrhea Care	***n=151***	***n=144***	**n=295**
Gave ORS	68% (103)	57% (82)	63%(185)
Gave sugar-salt solution	38% (58)	57% (83)	48%(141)

Gave antibiotic	49% (74)	41% (59)	45%(133)
Gave herbal/traditional medicine	52% (78)	33% (48)	43%(126)
Gave other medicine	22% (33)	12% (17)	17%(50)
Home Care of Cough -- Cold-- Trouble Breathing	***n=145***	***n=207***	**n=352**
Gave cough medicine	82% (119)	92% (190)	86%(209)
Gave fever medicine	68% (99)	43% (89)	56%(188)
Gave pain medicine	0.7% (1)	11% (22)	6%(23)
Gave herbal/traditional treatment	7% (11)	18% (38)	13%(49)
Gave other local/traditional treatment	4% (7)	15% (31)	10%(38)
Gave other medicine/treatment	4% (7)	9% (18)	7%(25)

Table 2.6: Reasons for Seeking Care Outside the Home (Bettiah, Deoghar Districts and Aggregate)

Reasons	Bettiah (n=298)	Deoghar (n=300)	Aggregate (n=598)
Poor appetite	38% (112)	84% (249)	61%(361)
Reduced activity, listless	33% (98)	72% (217)	53%(315)
High fever	38% (112)	72% (217)	55%(329)
Convulsions/fits	5% (15)	9% (26)	7%(41)
Changes in sleeping patterns	11% (32)	20% (61)	16%(93)
Persistence of symptoms	10% (31)	19% (57)	15%(88)
Vomiting	15% (46)	30% (90)	23%(136)
Change in stool color and consistency	15% (46)	32% (95)	24%(141)
Blood in stool	7% (20)	10% (29)	9%(49)
Coughing severely	16% (48)	59% (177)	38%(165)
Nose running	6% (18)	29% (86)	18%(104)
Earache, discharge	7% (20)	12% (36)	9%(56)
Trouble breathing	5% (15)	35% (105)	20%(120)
Fast breathing	4% (12)	19% (58)	12%(70)
Chest trouble	2% (7)	8% (24)	5%(31)
Other symptoms or signs	2% (5)	3% (8)	3%(13)

Table 2.7: Health-Seeking Behavior of Households for Childhood Illnesses

Type of Health Provider	Deoghar (n=300)	Bettiah (n=299)	Aggregate
Allopathic practitioner	82% (245)	90% (268)	n=599
Homeopath	2% (7)	1% (3)	86%(513)
Ayurvedic	3% (10)	--	2%(10)
Jantar-mantar	0.7% (2)	---	2%(10)
Jhar-phuk	1.0% (3)	0.3% (1)	.33%(2)
Ojha-guni	2.3% (7)	--	.66% (4)
Others	2.3% (7)	0.3% (1)	1%(7)
Shopkeepers	2.3% (7)	0.7% (2)	1%(8)
No answer	6% (19)	8% (24)	2%(9)

Table 2.8: Reasons for Choosing Provider 7%(43)

Reason	Bettiah (n=299)	Deoghar (n=299)	Aggregate (n=598)
Previously treated children	69% (208)	85% (255)	77%(463)
Easy to Reach	72%(216)	75% (224)	74%(440)
Always available	51% (151)	50% (148)	51%(299)
Medicine always available	44% (131)	51% (151)	48%(282)
Not costly	35% (104)	38% (112)	37%(216)
Gives credit/loan	37% (111)	40% (118)	39%(221)
Someone recommended	10% (54)	16% (48)	13%(102)
Doctor/CHW recommended	7% (21)	13% (38)	10%(59)

Table 2.10: Case Management Practices of Providers -- Quality of Care Provided by Practitioners (Examination): Deoghar, Bettiah and Aggregate

Type of Examination Practice/Behavior	Bettiah n=300	Deoghar	Aggregate
Examined the child	62%(127) n=205	84% (241) n=286	73%(368)
Touch the child as part of the examination	82%(213) n=259	86%(246) n=285	84%(459)
Use a thermometer to check for fever	77%(190) n=248	60%(167) n=280	69%(357)
Weighed the child	*15% (27) n=175*	*19%(53) n=282*	17%(80)
Used watch or timer to calculate breathing	*41% (47) 182*	*16%(44) n=282*	30%(91)
Asked about the care given at home	*49%(106) n=217*	*47%(120) n=254*	48%(226)
Asked about the child's immunization cards	*31%(56) n=180*	*31%(86) n=280*	31%(142)
Recommended immunization of the child	56%(108) n=192	*49%(136) n=278*	53%(244)
Took child's clothing off to examine the child	65% (129) n=200	71%(199) n=279	68%(164)
Looked in and examined inside the child's throat	53%(104) n=195	*45%(125) n=278*	49%(229)
Used a stethoscope on the child's chest	61%(130) n=213	*46%(128) n=280*	54%(258)
Felt the child's abdomen	66% (146) n=222	66%(176) n=268	66% (322)
Asked about the history of vomiting	66%(145) n=221	71%(196) n=276	69%(341)
Asked about history of diarrhea	66%(146) n=222	67%(193) n=290	67%(339)

Table 2.11: Practitioners' Treatment Practices (Diarrhea, ARI and Fever): Bettiah, Deoghar and Aggregate

Treatment Practices	Bettiah	Deoghar	Aggregate
Gave injection	76%(217) n=284	63%(176) n=281	70% (393)
Gave tablets	75%(243) n=289	78%(221) n=284	77%(464)
Gave syrup	79%(223) n=283	70%(201) n=289	75%(424)
Gave choloroquin	38%(53) n=141	8%(21) n=269	23%(74)
Gave paracetemol	36%(103) n=285	33%(83) n=255	33%(186)
Gave aspirin	21%(2) n=87	11%(26) n=242	16%(28)
Gave instructions to increase fluids	44%(43) n=98	49%(132) n=269	47%(175)
Recommended ORS/SSS	19%(18) n=97	29%(73) n=255	24%(91)
Recommended of regular diet	27%(26) n=96	37%(96) n=260	32%(122)
Recommended special diet	10%(9) n=88	27%(70) n=285	19%(79)
Gave antidiarrheal medicines	50%(60) n=119	19%(49) n=253	35%(109)
Gave antibiotics	10%(9) n=87	25%(65) n=255	18%(74)
Gave Vitamin A	6%(5) n=86	11%(27) n=250	9%(32)
Gave other medicine	6%(5) n=85	7%(18) n=254	7%(33)
Referred to another source of care	6%(5) n=86	4%(10) n=255	5%(15)

Persons Interviewed for Research Methodology

Mr. Om Prakash Verma, Research Investigator, Kurji OR Team, Patna
Mr. Manoj Verma, Research Investigator, SPAA (Deoghar), and Adhar (Bettiah)
Mr. Debashish Chakraborty, Research Coordinator, Kurji OR Team, Patna (to be completed)
Mr. Anthony John, Research Analyst, Kurji OR Team, Patna
Community Health Worker, Baratan Village, Dumka district

APPENDIX E

QUESTIONNAIRE—FORMS I-IV

FORM I

Questionnaire and Protocol for CHW after Encounter with Providers that Did not Attend the Training Sessions

Name:
Village:

1. Did you (local health provider) attend the diarrhea {dattend} training session organized by SPAA in Deoghar?

Yes ( ) = 1, No ( ) = 0

2. Did you attend the pneumonia {pattend} training session organized by SPAA in Deoghar

Yes ( ) = 1, No ( ) = 0

Protocol

Doctor Saab, I am sorry you missed the training sessions organized by SPAA. At those sessions, we had discussed ways in which we could work closely with all local health providers in improving the health of our communities. At the training sessions we had mentioned certain behaviors which if adopted by local health providers would make a big contribution to community health. Many of the behaviors require informing parents about things to do at home that will result in good child health. As you know, many of our children suffer from diarrhea, pneumonia, and fevers. Therefore, the behaviors are targeted at these illnesses.

At this point, introduce the checklist and go over it. If the local health provider has any questions answer the questions. Also mention the checklist has been designed so that the providers can take it with them when they travel (if possible, provide a plastic cover for each checklist).

Next, mention that given the importance of practicing these behaviors for improving community health, we are hoping that you will verbally agree or sign a contract mentioning which behaviors you think you can practice.

Behaviors: All Cases -- Information-Giving and Counseling

Give information about danger signs and what to look for to seek care.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior.

Inform mother of how to take each medicine
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior.

Recommend breastfeeding the child
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior.

Gave the mother a chance to ask questions
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

<u>All Diarrhea Cases</u>

Ask about use of SSS or ORS at home by mother before consultation
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Recommend fluids
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Give information about how to mix ORS
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Recommend giving diet as usual, or more often than usual.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

<u>All ARI Cases</u>

Uses a watch or timer to measure the frequency of respiration.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior

Take-off shirt to see chest, for signs of chest indrawing.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Take temperature with a thermometer.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Inform mother about the danger signs to look for and to seek care.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

<u>All Fever Cases</u>

Take temperature with thermometer.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

Give anti-fever medicine.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

Recommend bathing the child in tepid water.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

Recommend giving lots of fluid.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

Thank you doctor. We appreciate your interest in community health, and hope we will all be able to work closely in improving the health of our communities.

FORM II

Questionnaire and Protocol for CHW Encounter with Providers that Attended Both Training Sessions

Name:

Village:

1. Did you attend the diarrhea {dattend} training session organized by SPAA in Deoghar?

Yes ( ) = 1, No ( ) = 0

2. Did you attend the pneumonia {pattend} training session organized by SPAA in Deoghar

Yes ( ) = 1, No ( ) = 0

Protocol

Doctor Saab, I am come to give you some more information about the behaviors that you heard about in the training session. As was mentioned, if these behaviors are practiced by the local health providers, they will be making an important contribution to the health of the community. As you know, many of our children suffer from diarrhea, pneumonia and fevers. Therefore, the behaviors are targeted at these illnesses.

At this point, introduce the checklist and go over it. If the local health provider has any questions answer the questions. Also mention the checklist has been designed so that the providers can take it with them when they travel (if possible, provide a plastic cover for each checklist).

Next, mention that given the importance of practicing these behaviors for improving community health, we are hoping that you will verbally agree or sign a contract mentioning which behaviors you think you can practice.

Behaviors: All Cases -- Information-Giving and Counseling

Give information about danger signs and what to look for to seek care
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)

If no, then could you please explain why you think you cannot practice this behavior.

Inform mother of how to take each medicine
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior.

Recommend breatfeeding the child even if the child is sick or the mother is sick
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior.

Gave the mother a chance to ask questions
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

<u>All Diarrhea Cases</u>

Ask about use of SSS or ORS at home by mother before consultation
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Recommend fluids
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Give information about how to mix ORS
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Recommend giving diet as usual, or more often than usual
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

<u>All Pneumonia Cases</u>

Uses a watch or timer to measure the frequency of respiration.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Take-off shirt to see chest, for signs of chest indrawing.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Take temperature with a thermometer.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)
If no, then could you please explain why you think you cannot practice this behavior

Inform mother about the danger signs to look for and to seek care.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior

<u>All Fever Cases</u>

Take temperature with thermometer.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

Give anti-fever medicine.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

Recommend bathing the child in warm water.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

Recommended giving lots of fluid.
Yes, I will practice (1), No, I cannot practice (2), I am not interested (3)If no, then could you please explain why you think you cannot practice this behavior.

Thank you doctor. We appreciate your interest in community health, and hope we will all be able to work closely in improving the health of our communities.

FORM III

Questionnaire for Interview with Mahila Mandals -- to be completed for each provider visited by members of the Mahila Mandal in the last two weeks

1. In the last two weeks have you visited a local health practitioner with respect to your children's illnesses.
   1= Yes ( ), 2= No ( )

   If yes, what was the name of the local health provider?

   Do you know which village he is from?

2. Which illness did you visit him for?

   1= cough/cold, 2= fast breathing, 3= difficulty breathing, 4=chest trouble, 5= diarrhea, 6= fever, 6 = other. If other please explain _____.

3. Did the doctor mention the following

<u>All Cases -- Information-Giving and Counseling</u>

- Give information about danger signs and what to look for to seek care.
- *1= Yes, 2= No, 3= Do not remember*
- Inform mother of how to take each medicine
- *1= Yes, 2= No, 3= Do not remember*
- Recommend breastfeeding the child
- *1= Yes, 2= No, 3= Do not remember*
- Gave the mother a chance to ask questions

<u>All Diarrhea Cases</u>

- Ask about use of SSS or ORS at home by mother before consultation
- *1= Yes, 2= No, 3= Do not remember*
- Recommend fluids (70% did not practice behavior)
- *1= Yes, 2= No, 3= Do not remember*
- Give information about how to mix ORS (55% did not practice behavior)
- *1= Yes, 2= No, 3= Do not remember*
- Recommend giving diet as usual, or more often than usual
- *1= Yes, 2= No, 3= Do not remember*

All ARI Cases

- Uses a watch or timer to measure the frequency of respiration
- *1= Yes, 2= No, 3= Do not remember*
- Take-off shirt to see chest, for signs of chest in-drawing
- *1= Yes, 2= No, 3= Do not remember*
- Take temperature with a thermometer
- *1= Yes, 2= No, 3= Do not remember*
- Inform mother about the danger signs to look for and to seek care
- *1= Yes, 2= No, 3= Do not remember*

All Fever Cases

- Take temperature with thermometer
- *1= Yes, 2= No, 3= Do not remember*
- Give anti-fever medicine
- *1= Yes, 2= No, 3= Do not remember*
- Recommend bathing the child in tepid water
- *1= Yes, 2= No, 3= Do not remember*
- Recommended giving lots of fluid
- *1= Yes, 2= No, 3= Do not remember*

FORM IV

Questionnaire cum Protocol for Repeat CHW Encounter with Provider -- To be completed after getting monitoring information from mahila mandals

1. Doctor Saab, how are you? We (SPAA) are following-up with you to find out what happened regarding practicing the behaviors that we had discussed with you in January.

2. Our records show that you had agreed to practice the following behaviors

COMPLETE FROM CHW FIRST ENCOUNTER FORM.

3. Could you tell us which behaviors you have been able to practice, and if you haven't been able to practice those behaviors why.

This form will have to be reconstructed after the first CHW encounter. From that the list of behaviors agreed by each provider will have to be used to create a monitoring form.

APPENDIX F

INTERVIEWS I - IV

INTERVIEW I

Interview with Mr. Manoj Verma, Research Investigator, SPAA, Deoghar
December 11, 1996

1. Did you attend the diarrhea training sessions for local health providers?

Yes.

2. If yes, according to your estimates, how many providers attended the training seminar?

I believe there were around 30 providers. There were also 10 CHWs that attended the sessions. So, total number of participants was 40.

3. Did you attend the pneumonia training sessions for the local health providers?

Yes.

4. According to your estimates, how many providers attended the pneumonia training session?

It was the same as for the diarrhea, around 30 providers and 10 CHWs.

3. Could you please describe what took place at the two sessions?

First, I would like to talk about the **pneumonia** session. The trainer first described how does pneumonia happen? Then he also talked about what pneumonia is, and what its recognition signs. The trainer also did the same for fever. The trainer also described home management practices for pneumonia. In Bettiah, the trainer talked about the medicines to be used for pneumonia, and he mostly concentrated on home treatment. A homeopath who specializes on fever was invited to the sessions in Bettiah, and mentioned homeopathic medicines for fever. The local health providers were interested in knowing about other illnesses such as typhoid, meningitis, malaria. The trainers also focused on what the participants should do now that they have received this training. They mentioned that now the participants had a responsibility to spread the word among mahila mandals, especially about home management and recognition of severity. It was also mentioned that the local health provider could be involved with the CHW in mahila mandal meetings.

Diarrhea Training Session: The diarrhea training session was the first one that was held. Since it was the first meeting that was held, we all introduced ourselves, and stated what our objectives were in meeting as a group. Then the resource person (trainer) discussed what diarrhea is, what

the signs are, what are the reasons for diarrhea, and what should be done at home to prevent diarrhea. The resource persons also described how to mix SSS and administer it. We gave each provider 10 samples of ORS. We also told that in case they don't get ORS in the future, that they should recommend SSS to mothers. We also described to the participants how to spread the message of ORS/SSS. At the diarrhea meeting we also met with the CHWs to discuss a strategy for working with the women in the community on child health issues. At this meeting we formulated a strategy where one women from each village would be invited to come to the health post. During this meeting at the health post, we had a general introduction, we described our objectives, and explained what is diarrhea, recognition, and how to manage diarrhea cases at home. The objective was that once women returned to their own villages, they would spread the message among the other women.

NB: Based on MV comments, it appears that during the survey, CHWs were already providing training to local health providers.

INTERVIEW II

Focus Group Interviews with Mohammed Yakub Hassan, Abdul Kalam Ansal, Gunu Babu Rai, Virendra Sinha (Private Practitioners, Baratar) Regarding Group Training Sessions:

Q1. Did you attend the diarrhea training session arranged by SPAA in Deoghar?

Yes

Q2. Did you attend the ARI and fever training session arranged by SPAA in Deoghar?

Yes

Q3. Could you please describe the training sessions and your general impressions.

The training sessions were good. For example, we learned that if a child has diarrhea then a simple sugar salt-solution can help prevent dehydration. We didn't know this before. Also, the sugar-salt solution is relatively cheap -- it's good because the villagers are so poor. We need to be able to give medicines which are cheap. During the ARI session we learned that relatively cheap antibiotics like cotrimoxi could cure pneumonia. We need to explore these cheap options. However, the training was too short -- we need a much longer training session (5-6 days).

Q4. Could you please describe what you would do if a child comes in with diarrhea. How would you diagnose it? What medicines would you give the child?

Generally from looking at the child you can tell if he/she is very sick. In our areas, the children are in such poor health that even if they have had diarrhea for a few days, they get very sick and immediately need saline. So, we give saline. We also give medicines for vomiting if this is the case, antibiotics, and antidiarrheals.

Q5. What about pneumonia? What would you do if a child comes in with pneumonia? How would you tell whether its very sick.

Generally, if a child has pneumonia, you can tell. It has *pasli channa* (chest indrawing). I would give the child antibiotics.

Q6. Do you have any other general comments?

Yes, I would like to reiterate that we really liked the training, but longer sessions would be much more helpful.

INTERVIEW III

Focus Group Interview with Ramdas Prasad, Brindavan Mandal, Nandakishore Bhandari and Chandrasheker Mandal (Private Practitioners, Pathariya Health Post) Regarding Group Training Sessions:

Q1. Did you all attend the diarrhea training sessions organized by SPAA in Deoghar?

Yes, we all attended the diarrhea training session.

Q2. Did you all attend the ARI and fever training sessions organized by SPAA in Deoghar?

No, two of us did not attend. One of us did not get the information on time. The other one was very involved in fighting a cholera epidemic which was occurring in the nearby areas around that time.

Q3. Could you please tell me your general impressions about the training sessions?

We are very interested in getting information and training in the illnesses that we deal with on a day-to-day basis. In that sense, we really appreciated the training. We also learned many new things. For example, we now know more about what to do about pneumonia. We also know that during diarrhea, if we recommend sugar-salt solution, the child will not get more sick. However, our only complaint is that the training session was too short. It was only a one-day training, and by the time everybody arrived, we had introductions, tea-break and a lunch break, the total time spent on the training was only 4 to 5 hours. That is definitely not enough.

Q4. Could you please describe to me in detail what you would do if a child comes to you with diarrhea?

We would do a skin pinch to see if the child is dehydrated. We would also check to see if the mouth is dry, and if there is a temperature. Then we would recommend ORS/SSS for about 6 hrs. If the child doesn't get better, then we would give medicines.

Q5. What about pneumonia? What would you do if a child comes to you with pneumonia?

We would check for the following symptoms -- cough/cold, fever redness on the tongue, *pasli chana* (chest indrawing). Then we would give herbal medicine. If the fever doesn't go away, then we would give antibiotics (ampicillin).

Q5. Do you have any final comments on the training session or on anything else.

Village doctors need to form a village doctors association. We play an important role in the community, but we need training, and also some structural inputs like blood pressure machines, ORS, cotrimoxi.

INTERVIEW IV

Key Informant Interview with Government Doctor near Pathariya Health Post

I believe the quacks are providing a valuable service in remote rural areas in the Santhal Parganas. They are extremely available and accessible which is good. But, they are also prone to making mis-diagnoses and giving the wrong kind of medication. As a result, by the time the patients come to us, it is too late. For example, early this morning, a 9-month old child was brought to me. She had no pulse. A quack had given her a whole ampule of deriphylin (typically given for acute asthma). The child was actually suffering from stomach cramps. I tried my best to revive her, but she died. I think the quacks need training, but there should be some accountability.