

**Technical Report # 38
Effects of Paramedics Training on
Provider Performance and
Client Use of Services in Bangladesh**

June 2002

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**PRIME II
Bangladesh**

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This publication was produced by the PRIME II Project and was made possible through support provided by the United States Agency for International Development (USAID) under the terms of Grant No. HRN-A-00-99-00022-00. The views expressed in this document are those of the authors and do not necessarily reflect those of IntraHealth International or USAID.



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PRIME II Partnership: IntraHealth International; Abt Associates, Inc.; EngenderHealth; Program for Appropriate Technology in Health (PATH); and Training Resources Group, Inc. (TRG), with supporting institutions, the American College of Nurse Midwives (ACNM) and Save the Children.

ISBN # 1-881961-83-4

Suggested citation: Sadana, R.; N.C. Roy; and A. Fort. Effects of Paramedics Training on Provider Performance and Client Use of Services in Bangladesh. Chapel Hill, NC: IntraHealth International/PRIME II Project, 2003. (PRIME Technical Report # 38)

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Acknowledgements

The authors wish to thank Jim McMahan and Wilda Campbell for their valuable comments and contributions to this report.

Thank you also to Ms. Barbara Wollan, Administrative Assistant for the Monitoring and Evaluation Unit, IntraHealth/PRIME II, Chapel Hill, for formatting this document.

Acronyms

ANC	Antenatal Care
ARI	Acute Respiratory Infection
CSI	Child Survival Interventions
ESP	Essential Services Package
FGD	Focus Group Discussion
FP	Family Planning
NIPHP	National Integrated Population and Health Program
ORH	Other Reproductive Health
QA	Quality Assurance
QoC	Quality of Care
RSDP	Rural Service Delivery Partnership
UFHP	Urban Family Health Partnership

Executive Summary

In August 2001, PRIME conducted a Training Effects Study of performance of Child Survival Interventions (CSI) and Other Reproductive Health (ORH) trainees at their service sites. Of the 124 paramedics interviewed at 36 clinics, 113 were trained in CSI, ORH, or both – 15 had received no training and served as a natural control group. The study found that as many as 64.2% of the trained paramedics possessed adequate CSI knowledge as compared to only 24.1% of the untrained paramedics. On the other hand, 96% of the trained paramedics possessed adequate ORH knowledge as against 62.5% of the untrained paramedics. The difference between the knowledge levels of trained and untrained paramedics in both CSI and ORH is statistically significant. It was also found that utilization of clinic services had increased dramatically since the arrival of the trained paramedics, and it is felt that part of that increase was due to the higher quality of services delivered by the trained paramedics.

Introduction

Overview

Since 1998, PRIME has been providing technical assistance to training organizations in Bangladesh under the USAID funded National Integrated Population and Health Program (NIPHP). NIPHP is a partnership between USAID and nine selected cooperating agencies, and the Government of Bangladesh. The partners operate within Bangladesh's national health and population program to contribute to the nation's immediate health and demographic objectives and its long-term development objective of self-reliance.

The work of PRIME has focused on developing training capacity to prepare primary providers (paramedics) to deliver the Essential Services Package (ESP) at urban and rural clinics. As part of the ESP, training organizations have delivered training in what has been called ORH services and CSI. ORH has been differentiated from Family Planning (FP) services and is defined as a combination of Antenatal Care (ANC), Postnatal Care, Newborn Care and Reproductive Tract Infection/Sexually Transmitted Disease services. CSI is defined as a combination of Acute Respiratory Infection (ARI), Control of Diarrheal Diseases, Immunization, Breast Feeding and Interpersonal Communication.

PRIME joined forces with the Urban Family Health Partnership (UFHP), Rural Service Delivery Partnership (RSDP), and the Quality Improvement Partnership and selected training organizations to develop training curricula, train trainers, develop/adapt training material and evaluate provider performance.

CSI and ORH training activities were underway in late 1998 and as of June 2001 about 1300 paramedics had been trained in both CSI and ORH courses. The post-test and follow-up scores indicated improvements in both the knowledge and skills of trained paramedics. However, to assess whether such high knowledge and skill levels corresponded with overall improved provider performance, including enhanced Quality of Care (QoC) and client use of services, PRIME conducted a special study in August 2001.

Objectives of the study:

The main objectives of the study were:

1. To determine whether training in CSI and ORH services resulted in improved QoC and overall performance of trained paramedics.
2. To assess whether the expanded availability of services effectively resulted in increased use of services.
3. To elicit client and community perceptions of services offered by paramedics in relation to their needs.

Methodology

Study design

The study is a cross-sectional assessment of provider performance at service delivery points, or the clinic level. The review of clinic records for CSI and ORH services includes data on services provided before and after training.

Sampling design

The universe for this study consists of 285 clinics, where trained paramedics have returned to deliver services. For this study, a sample of 29 clinics (i.e., 10%) was selected. To compensate for “non responses” and non-availability of paramedics at the clinics, seven more clinics were selected. In all, **36 clinics were selected** for this assessment. As the proportion of UFHP and RSDP clinics was almost the same, an equal number of clinics, that is 18 clinics were selected from UFHP as well as RSDP area. Since the trained paramedics are spread across the country, sampling was conducted through a multi-stage fashion (see below) in order to have a representative sample as well as to increase the efficiency of fieldwork.

For administrative purposes, Bangladesh has been divided into six divisions. These six divisions were stratified into three clusters based on geographic differences (e.g., hilly, central and lowland areas). From each cluster, one division was randomly selected. Seven out of 18 UFHP sampled clinics were selected from the city corporation area, in keeping with the proportion (40%) of city corporation clinics, compared to district level sites. The remaining 11 UFHP clinics and all 18 RSDP clinics were randomly selected from the districts where at least 15 paramedics had been trained, to optimize utilization of surveyors’ time. Hence, sampling does reflect selectivity toward areas of relative increased training efforts.

Data collection methods and tools

Interview schedule and observation checklist

In the 36 sampled clinics, **124 paramedics** were interviewed to assess the adequacy of their knowledge in CSI and ORH (Table 1). An observation checklist was used to assess paramedics’ skills in ARI (a component of CSI) and ANC (a component of ORH). For the purpose of this study, a paramedic who scored or fulfilled at least 80% of knowledge items or tasks in an ARI checklist was considered to possess adequate CSI knowledge and skills, respectively. Similarly, a paramedic who scored/fulfilled at least 60% of knowledge or task items in an ANC checklist was considered to possess adequate ORH knowledge/skills, respectively. The same checklists were also used to assess paramedics’ performance during post-training follow-up at their work site. Trainers visited the work sites of the trained paramedics to assess their skills at least three months after training. Of the 124 paramedics interviewed, 86 (69.3%) were trained in both CSI and ORH, nine (7.2) were trained only in CSI, 14 (11.3%) were trained only in ORH. Hence, 95 paramedics (86+9) were trained in at least CSI and 100 (86+14) were trained in at least ORH. The remaining 15 paramedics (12.1%) were neither trained in CSI nor ORH and were thus

considered “untrained”. These untrained paramedics in the sampled clinics served as a natural ‘control’ group in the study.

Table 1: Respondent's status of training

Training Status	N	%
Trained in both CSI and ORH	86	69.3
Trained only in CSI	9	7.2
Trained only in ORH	14	11.3
Untrained	15	12.1
Total	124	100

Client exit interview

To assess clients' perceptions of the quality of clinic services, two clients, one each for the CSI and ORH components, were interviewed in each clinic immediately after they received services from paramedics. In all, **72 clients** between the ages of 16 and 38 years were interviewed in the 36 clinics.

Clinic facility inventory and record review format

Essential items for providing general, child and ORH care series were assessed in 36 sample clinics using a clinic facility inventory. The items in the inventory were the same used during the paramedics' training session and assessed during Quality Assurance (QA) visits. Records of ESP services were reviewed to assess any changes in the number of services/clients seen before and after the paramedics' training in all the sampled 36 clinics.

Focus group discussion (FGD) guide

Twelve FGDs were conducted (i.e., approximately one in every three clinics) to understand community awareness about the availability of clinical services and provider performance. A FGD guide was used to elicit responses from the participants. The participants were selected from different parts of the village with the help of community opinion leaders. All the FGDs were conducted at least one mile away from the clinic. About 80% of the participants had used clinic services at one time or the other, whereas the remaining 20% had not, and could be considered as potential clients.

Training of interviewers and data collection

Four teams of four members each were formed to collect data. Each team consisted of clinical and non-clinical personnel. The data collectors underwent a 3-day orientation on interview and observation techniques, familiarization with data collection tools and field practice. Data was collected from August 4-15, 2001. Two PRIME staff members, the Evaluation Coordinator and the Senior Clinical Specialist visited 25% of the sampled clinics to supervise data collection.

Data analysis and report

Quantitative data was entered using the FoxPro package and analyzed using SPSS software. Qualitative data from FGDs was analyzed for content to assess community awareness of services and provider performance.

Limitations of the study

Since baseline data was not collected for this study, it is not possible to infer changes within the intervention group (trained paramedics) that could be attributed solely to the intervention (training). However, the comparisons on several variables with untrained providers provide an indication of such training benefits. Similarly, clinic records before and after the training were compared to assess any changes in the number of clients within the group. The lack of a control area (where no training occurred) will limit our understanding of the “net” effect of training over other possible influences on client attendance at clinics.

Findings

Knowledge of CSI and ORH

As many as 64.2% of the trained paramedics possessed adequate CSI knowledge as compared to only 24.1% of untrained paramedics (Table 2). On the other hand, 96% of the trained paramedics possessed adequate ORH knowledge as against 62.5% of the untrained paramedics. These differences between knowledge levels were statistically significant.

Table 2: Adequate knowledge in CSI and ORH

Status	CSI				ORH			
	Trained		Untrained		Trained		Untrained	
	#	%	#	%	#	%	#	%
Adequate +	61	64.2**	7	24.1	96	96.0**	15	62.5
Inadequate	34	35.8	22	75.9	4	4.0	9	37.5
Total	95	100.0	29	100.0	100	100.0	24	100.0

+ Providers scored 80% or more in CSI and 60% or more in ORH knowledge assessment

** p<0.001

Retention of knowledge

The paramedics undergo a knowledge test on the last day of training. The scores obtained in the knowledge test are referred as post-test scores. PRIME NIPHP office has maintained a database of the post-test scores of all the trained paramedics.

To assess paramedics' retention of knowledge since the completion of training, their average post-test knowledge scores (as per the database) were compared with the average knowledge scores of the study sample. The average time elapsed since training was 22 months for CSI trainees and 17 months for ORH trainees. Similar interviews were used to assess paramedics' knowledge at the time of post-test and at the time of this study. The comparison revealed statistically significant differences between the average post-test and the study sample knowledge scores of CSI and ORH (Table 3).

Table 3: Retention of CSI and ORH knowledge

Type of training	Average post-test score		Average score at follow-up	
	N	%	N	%
CSI	1231	89*	95	78
ORH	1264	86*	100	72

* Significant at p<0.01

CSI and ORH technical skills

In the CSI component, 85.2% of the trained paramedics as compared to 44.8% of the untrained paramedics demonstrated adequate CSI service skills (Table 4). On the other hand, in the ORH component, 82% of the trained paramedics as compared to only 16.6% of the untrained paramedics demonstrated adequate ORH service skills.

The difference between the skill levels of the two groups, viz., trained and untrained paramedics in both CSI and ORH was statistically significant.

Table 4: Adequate skills in CSI and ORH

Status	CSI				ORH			
	Trained		Untrained		Trained		Untrained	
	#	%	#	%	#	%	#	%
Adequate +	81	85.2**	13	44.8	82	82.0**	4	16.6
Inadequate	14	14.8	16	55.2	18	18.0	20	83.4
Total	95	100.0	29	100.0	100	100.0	24	100.0

+ Providers scored 80% or more in CSI and 60% or more in ORH knowledge assessment

** p<0.001

Interpersonal communication skills

Inter personal communication (IPC) skills are a part of CSI training. During Client-Provider Interaction, paramedics' IPC skills were observed for those trained in CSI services. The findings indicated that about-half (49.5%) of the trained in contrast to a little more than one-third (34.4%) of the untrained paramedics possessed adequate IPC skills (Table 5). However, the difference did not reach statistical significance. For the purpose of this study, adequate skills refer to more than an 80% score in the IPC assessment checklist.

Table 5: Adequate skills in interpersonal communication

Training skills	Trained in CSI		Untrained in CSI	
Respondents	95		29	
	N	%	N	%
Adequate IPC skills	47	49.5	10	34.4

Clients' perspectives on QoC

Sources of information about clinic services

Relatives (40.2%) and friends/neighbors (37.5%) emerged as important sources of information about services provided at clinics (Table 6). Clients also mentioned clinic/health staff (40.2%) as an important source of information about clinic services. More than half (52.7%) of clients used clinic services at least once in the last month whereas more than 26.3% of clients used the clinic services in the past 2-3 months. Altogether, a very large proportion (nearly 80 percent) of clients visited clinic services at least once during the last three months.

Table 6: Sources of awareness of clinics and timings of last visit (N = 72)

No. of clients interviewed	N	%
Sources of information*		
- Relatives	29	40.2
- Clinic/Health staff	29	40.2
- Friend/Neighbor	27	37.5
- Husband	8	11.1
- Television	4	5.5

No. of clients interviewed	N	%
Last visit to clinic		
- 1 month ago	38	52.7
- 2-3 months ago	19	26.3
- 4-6 months ago	3	4.2
- More than 6 months ago	5	6.9
- First visit	7	9.7

* Multiple responses, will not add to 100%

Clients' perception about providers and services

The exit interviews asked clients about their perception about a number of items related to provider performance or clinic arrangements. They are reported below.

Provider performance

The three questions asked from clients about provider performance were whether they assured confidentiality/privacy to clients, whether they listened to clients' problems and whether they advised clients to make a return visit for follow-up. The same number of clients (68) responded positively about all the three items related to paramedics' behavior (Table 7).

Table 7: Client perception of paramedics' behavior (N = 72)

No. of clients interviewed	N	%
Confidentiality/privacy		
- Yes	68	94.4
- No	4	5.6
Provider behavior at listening to problems		
- V. Good/Good	68	94.4
- Fair	4	5.6
- Poor	0	0
Advised return visit		
- Yes	68	94.4
- No	4	5.6

Clinic arrangements

About ninety-two per cent of clients rated waiting arrangements (seating arrangements, place etc.) at clinics as "Good" or "Very good" (Table 8). All but one client mentioned that the existing clinic hours, that is, between 9 a.m. and 5 p.m. were convenient to them. Ninety-four per cent of clients were satisfied with clinic services.

Table 8: Client satisfaction with clinic facilities (N = 72)

No. of clients interviewed	N	%
Waiting arrangements at clinic		
- Very Good/Good	66	91.6
- Fair	4	5.5
- Poor	2	2.7
Clinics timings		
- Convenient (9 a.m. to 5 p.m.)	71	98.6
- Not convenient	1	1.4

No. of clients interviewed	N	%
Reason for choosing this clinic		
- Satisfied with clinic services	68	94.4
- Not satisfied	4	5.6

Suggestions for improvement of quality of clinic services

Understandably, as most clients were satisfied with provider behavior and the quality of clinic services, 96.4% of the clients mentioned that they would visit the same clinic in the future and inform their relatives/neighbors about its facilities (Table 9). When asked for suggestions for improving clinic services, 37.5% mentioned that clinics should provide obstetric services. A few (12.5%) suggested that free services should be made available for poor clients and 11.1% requested availability of specialists in clinics. Only 6.9% of the interviewed clients mentioned that laboratory testing facilities for blood, urine, stool and pregnancy should be available at clinics.

Table 9: Suggestions for improving the quality of clinic services (N = 72)

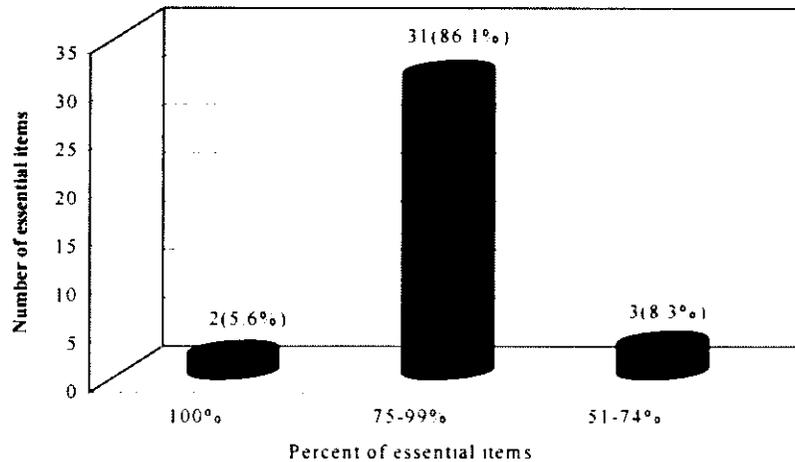
No. of clients interviewed	N	%
Would visit clinic in the future		
- Yes	68	94.4
- No	4	5.6
Suggestions to improve clinic services		
- Delivery facilities	27	37.5
- Free of cost for poor	9	12.5
- Expert doctor/specialist	8	11.1
- All lab tests	5	6.9
- No suggestions	22	30.5

Availability of essential clinical items and average client load after training

Availability of essential clinical items

Through the use of facility inventories, it was found that only in two clinics all essential items for providing the three desired services-general, CSI and ORH, were available (Figure 1). In 31 clinics, 75%-99% of essential items were available and in the remaining three clinics, 51-74% of essential items were available.

Figure 1: Availability of essential items in clinics



When the analysis is restricted to the percentage of facilities having separate essential items for each of the above-mentioned services, that is, general, CSI and ORH clinical services, a different picture emerged.

The inventories revealed that in 28 clinics (77.7%) of the 36, all essential items to provide general clinical services were available. At the same time, only seven clinics (19.4%) had all essential items to provide CSI clinical services, and a similar low number of clinics (5, or 13.8%) had all essential items to provide ORH clinical services (Table 10).

Table 10: Availability of essential items for providing general, CSI and ORH clinical services (N = 36)

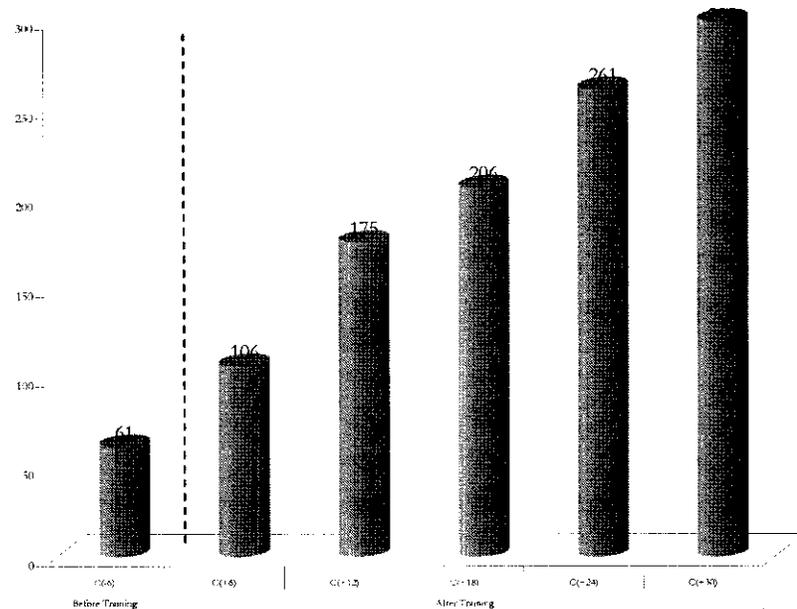
Availability of essential items by service (# of essential items in parentheses)	Total	
	N	%
General clinical services (9 items)	28	77.7
CSI clinical services (17 items)	7	19.4
ORH clinical services (19 items)	5	13.8

Average monthly client load before and after CSI and ORH training

Clinic records were reviewed to assess the average number of clients visiting a clinic per month before paramedics were trained in either CSI or ORH. The records revealed that there has been a **marked increase in the average number of clients attending clinics after the training of paramedics**. On average, 61 clients per month were visiting a clinic during the 6-month period before the first paramedic was trained. The corresponding figure for the 6-month period after training went up to 106 (Figure 2). After 12 months of training, the average number of clients visiting each clinic was 175 per month. The findings indicated that there has been a steady increase in the average number of clients seen after the training. Though the trend is consistently positive, the lack of similar clinic data from a control group that did not receive the intervention makes it impossible to ascertain the **net** growth in the number

of clients due to the intervention.

Figure 2: Average number of clients visiting each clinic monthly for CSI and ORH services before and after training



Community awareness of services and provider performance

This information has been obtained through a series of 12 FGD held around clinics visited, and is presented below:

Service information and access

The participants mentioned various sources, such as paramedics/health workers, community mobilizers (in RSDP clinics), senior service promoters (in RSDP clinics), relatives, family members and neighbors as the sources of information about clinic services. Participants mentioned child immunization, ARI, Tetanus Toxoid (TT) vaccination for women, FP and ANC as the most important services provided by clinics. They also mentioned that the services are affordable and medicines are inexpensive- clinic charges vary between Tk10-20 (US\$0.18-0.36). On average, participants mentioned that they/their family members visit clinics 3-5 times a year.

Quality of services

Participants mentioned that they were satisfied with the quality of services provided at clinics since they are treated equally irrespective of their economic status. They were also satisfied with the convenient location and clinic hours. The participants mentioned that confidentiality is maintained with clients. These comments support the responses of clients in the client exit interview.

Suggestions to improve services

The participants suggested that **obstetric services** should be made available at the clinic level. They mentioned that a bigger signboard should be used to advertise clinic services.

Discussion

CSI and ORH training has resulted in considerable improvement in the observed knowledge and skills of the trained paramedics. These results confirm the positive effects of training and advocates for completing training in both content areas to all the remaining untrained paramedics.

However, the loss of paramedics' knowledge in both CSI and ORH components also suggest the need to develop follow-up mechanisms after training, including supportive supervision to ensure transfer and maintenance of learning on the job.

The study also found that only half of trained paramedics had adequate inter-personal communication skills. This is an important skill to establish rapport between the client and provider and increase the QoC. Currently, this component is given only during CSI training, but not in ORH training. In order to improve paramedics' skills in this area, NIPHP partners should consider integrating it with the ORH training.

The findings from the client exit interviews are largely favorable and suggest that clients are satisfied with the QoC provided at clinics. Paramedics' improved behavior, for example by making the visit a more pleasurable and courteous experience for clients, could be a direct application of improved knowledge and skills gained during the CSI and ORH training. However, this result should be interpreted with caution for two reasons: first, it is well known that a courtesy bias in interviewed clients usually leads to extremely positive responses to questions about satisfaction with services. Secondly, since no baseline data or control group were used to compare results, it is not possible to assess what the satisfaction level would have been in the absence of interventions.

Still, results seem to indicate a high degree of satisfaction with critical aspects of the health care. Similarly, the community members who participated in the FGDs (consisting of clients and potential clients), reported that they were satisfied with and frequently utilize the clinic services. Although this methodology is purely qualitative, and suffers from the same limitations as stressed for the client interviews, it is plausible to suggest that the training interventions on CSI and ORH may have contributed to this positive perception by clients.

It is interesting to note that clients –both at the exit interviews as well as during the focus groups, expressed the need for the availability of obstetric services at the clinic level. PRIME recommends that NIPHP partners explore the possibility of expanding the safe delivery training for paramedics.

On the supply side, it is essential to have the entire list of essential items in clinics at all times, in order to maintain a minimum standard of service quality. Clinic managers should frequently update the inventory of essential clinic items to assure that they are ordered in time and re-supplied to prevent stockouts. Increased attendance of clients is a cumulative result of many factors. Improved paramedics' knowledge and skills in CSI and ORH and existence of essential items required to deliver services may help attain high client satisfaction levels and increased awareness in the community of the clinics' benefits.

As shown above, CSI and ORH training has had an impact on improving provider skills and knowledge since mid-1998. Thus, it may be argued that such improvements may have contributed to higher QoC provided by the paramedics and accounted –at least partially, for the steady increase in the clients’ use of services. There may have been other concomitant factors (e.g., IEC, supervisory visits) responsible for this increase. However, we are confident that since training has been a major intervention in the last two years, its effects are largely seen here.

Summary and Recommendations

The Training Effects Study looked at the performance of paramedics trained in ORH and CSI under the USAID-funded NIPHP program in Bangladesh. The study findings reflect that provider performance improved largely as a result of training as the knowledge and skills of trained paramedics were significantly greater than those of untrained providers. Clinic utilization of services also increased steadily and substantially after paramedic training. Thus, training and improvements occurring as a result of it seems to have had a very important influence in increasing the number of clients at the clinic. Clients questioned in an exit interview expressed satisfaction with the level of privacy and confidentiality of the services they received, and FGDs revealed that participants were satisfied with the services provided at the local clinics, and that provider behavior and practices were also satisfactory. The clients were also satisfied with the clinic hours and waiting facilities in the clinics.

In most clinics, essential clinical items for providing general clinical services were present. However, more investment is needed to ensure all clinics are furnished with CSI and ORH-related items, allowing the provider to offer the services for which they had been trained.

The study confirms the need to provide CSI, ORH and interpersonal skills training to all paramedics. According to the population's expressed needs, NIPHP partners should also explore the possibility of training paramedics in obstetric services. Further, the study findings equally confirmed the need for a system to reinforce provider knowledge and skills, for example through post-training follow-up and supportive supervision, to prevent losses of these newly acquired knowledge and skills.

Epilogue - Dissemination efforts

In an effort to let a wider audience know of the results of this potentially important study for policy-making, PRIME presented the key results of the study in a TMG meeting on September 27, 2001 at the PRIME NIPHP office. About 20 representatives from USAID, UFHP, RSDP, IOCH and QA attended the presentation and provided useful comments and feedback.

It is hoped that the results gathered and reported here will help with future efforts by the government of Bangladesh and NGOs operating in the country contribute to increasing the access and quality of essential services to the needy population of the country.