Journal of Health & Population in Developing Countries

Screening for Service Needs in Primary Health Care Clinics: an Evaluation in Bangladesh

A.J. MERCER, [1] S. HOSSAIN [2], J. KHATUN [2], H. KABIR [2], N. SAHA [2], J. UDDIN [2] AND Y. HASAN [2]

Abstract

Many clients attending primary health care (PHC) facilities in developing countries are not aware of all the services available and of all their needs. This study in Bangladesh tested a screening tool for identifying needs for services, other than those requested by clients. The more systematic approach to screening significantly increased the amount of checking for service needs and the number of additional needs identified. The proportion of additional needs that were met also improved, from 24.3% to 80.3% in NGO intervention clinics and from 4.6% to 14.0% in Government clinics. The total number of additional services provided per 100 requested services increased from 12 to 28, and from 3 to 10, respectively. The results suggest that introducing a screening tool more widely in PHC clinics is feasible and could significantly increase coverage of reproductive and child health services.

Contact information: Email amercer@icddrb.org; Fax 880-2-9923116; Tel. 011815324;

1. Operations Research Scientist, Health Systems and Infectious Diseases Division, ICDDRB, Centre for Health and Population Research, Mohakali, Dhaka, Bangladesh
2. Operations Research staff, Health Systems and Infectious Diseases Division, ICDDRB, Centre for Health and Population Research, Mohakali, Dhaka, Bangladesh

The ***Journal of Health and Population in Developing Countries (ISSN 1095-8940)***
is a publication of the Department of Health Policy and Administration, School of Public Health
University of North Carolina at Chapel Hill.

UNC SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF HEALTH POLICY AND ADMINISTRATION

Screening for Service Needs in Primary Health Care Clinics: An Evaluation in Bangladesh

The Programme of Action drafted at the International Conference on Population and Development in Cairo (ICPD-1994) advocated provision of an expanded range of integrated reproductive and child health services (United Nations, 1995). However, studies in Latin America have found that integration of services is not sufficient to improve utilization, and lack of promotion of services can be a major barrier (Vernon and Foreit, 1999). Even among clients attending primary health care (PHC) clinics, there is often a lack of awareness of all the services available. A study in Guatemala found that 29% of women attending health centers did not know that family planning (FP) services were available (Vernon *et al*, 1997). A survey of clinic attenders in Peru found that 34% had additional needs for reproductive health services other than those requested (Leon *et al*, 1998). In Mexico, women attending health centers were found to have needs for counseling on breastfeeding and other services (Romero *et al*, 1997). Situation analysis in Africa has indicated that service needs not identified by service providers are common among clinic attenders (Miller, 1998).

A client attending a PHC centre may have needs for services apart from those requested. If not identified, this constitutes a missed opportunity to provide services. On the other hand, if needs for additional services are identified and addressed on the same clinic visit, higher coverage and more cost effective service delivery can be achieved. For example, when women bring their children to a PHC facility for services, there is an opportunity to provide reproductive health services (Vernon and Foreit, 1999). Recent research in PHC facilities in Latin America found that use of simple screening tools can lead to more service needs being identified and more services being provided per client visit. In Guatemala, use of a screening tool resulted in five-fold increase in the proportion of women asked about their reproductive intentions on visits to a health post or centre. The proportion of women who reported on exit that they had received a method, appointment or referral increased from 3.1% to 17.4%, with little change in comparison clinics (Mendez *et al*, 2004). An earlier study in Guatemala found that use of a seven-question algorithm by health centre staff doubled the amount of checking for additional needs. Additional service provision (including an appointment or referral) increased from 19% to 46% (Vernon *et al*, 1997). The marginal cost of providing up to two additional services can be lower than that of providing the services on separate visits (Perez Palacios, 1997).

The problem of unidentified needs for reproductive and child health services is particularly acute in South Asia and strategies are urgently required to address this (Pachauri, 1998). In Bangladesh, coverage of Government PHC services is very low and unidentified service need is a major problem. A study in 1997 found that 22.9% of married women of reproductive age (15-49 years) had unmet need for family planning, and most (90%) lived in rural areas (Barkat *et al*, 1997). The Demographic and Health Survey for 1999-2000 estimated the proportion at 15% for Bangladesh as a whole (BDHS, 2001). A study in six municipal areas found substantial additional need for services, other than those requested, among clients of urban PHC clinics run by a non-governmental organization (NGO) (Khatun *et.al*, 2001). Twenty-six percent of married women of reproductive age needed FP, 11% antenatal care (ANC), 54% tetanus toxoid (TT) vaccination, and 15% had symptoms of reproductive tract infection/sexually transmitted disease (RTI/STD). About one-third of children needed services that had not been requested: 34.9% of children aged under two years needed immunization, 34.8% of those aged under five years needed treatment for diarrhoeal disease (DD) and 38.5% for acute respiratory infection (ARI). A study conducted in a Government PHC Centre in Dhaka City found additional family health service needs among 8-15% of clients screened during clinic attendance using a simple algorithm. Three-quarters of the service needs were among women of reproductive age: RTI/ STD (24%), TT

vaccination (25%), and FP (27%). More than half of the needs identified could be addressed at the same health centre (Khanam *et al*, 2002).

Service delivery context in Bangladesh

In Bangladesh, a change in the service delivery system from domiciliary and satellite clinic services to fixed site provision was introduced under the Health and Population Sector Programme (HPSP), 1998-2003. The aim was to improve access to a broader range of services, the Essential Services Package (ESP), particularly among the rural poor. Integrated health and family planning services were to be provided free at the point of delivery under a "one-stop" service delivery system, through 13,500 new community clinics built to serve catchment populations of about 6,000 people in rural areas (MOHFW, 1998). The future of the community clinics is now uncertain under the next sectoral programme for 2004-8. However, it is known that utilization of Government facilities at upazilla (sub-district) level and below is low (CIET, 2001). Even among people attending facilities there is a lack of awareness of health needs and clients usually request only one specific service, which the service providers address (Khatun *et al*, 2001). The success of facility-based ESP services may in part rest on identifying and addressing as many service needs as possible among clients and their children. This study in Bangladesh was aimed at evaluating a screening tool to facilitate more systematic checking for health and FP needs, with a view to improving overall coverage of reproductive and child health services.

METHODS

Study design

The objectives of the study were: 1) to assess current provider knowledge and practice on screening and constraints on identifying health service needs among clients at PHC clinics in Bangladesh; 2) to develop, test and evaluate a screening tool for identifying service needs of clients and their children aged under five years; 3) to address the additional needs identified by providing services, information, advice, counseling and referral. To evaluate the effect of using the screening tool, selected indicators (Table 1) were monitored and compared, before and after the intervention, in intervention and non-equivalent comparison clinics.

Study sites and services

The study was carried out in collaboration with the Ministry of Health and Family Welfare (MOHFW) and the NGO Service Delivery Programme (NSDP) funded by the United States Agency for International Development (USAID). Site selection was purposive, based on types of clinic and services available and willingness of the partners to participate in the study. The study was conducted in two Government and two NGO areas. In these areas, all the static and satellite clinics were included in the study (Table 2). In the Government areas, the clinics were at union level (about 25,000 catchment population) and below, including the Union Health And Family Welfare Centre (UHFWC), community clinics (about 6,000 catchment population) and satellite clinics. At the UHFWC, the service providers were a Sub-Assistant Community Medical Officer (SACMO) and a female paramedic (Family Welfare Visitor - FWV). At the community clinics and satellite clinics, a male Health Assistant (HA), a female Family Welfare Assistant (FWA) and the FWV provide services. Services in the two NGO areas were provided at a static clinic in a semi-urban area and in several satellite clinics in surrounding villages. Usually 3-4 satellite teams work under one static clinic and one satellite team organizes 4-6 satellite clinics per week in different locations. The service providers were a Medical Officer, paramedic and a

counselor in the static clinics, and a paramedic and service promoter (community health worker) in the satellite clinics, all of whom participated in the screening.

The screening tool was used to identify needs for selected services other than those requested: reproductive health (ANC, PNC, TT vaccination, RTI/STD and FP), child health (immunization, DD and ARI) and general health. All the selected services were available in the NGO clinics, and all except treatment for RTI/STDs were available in the Government clinics.

Table 1: Indicators of the effectiveness of the screening tool and sources of data

Effectiveness for:	*Indicator*	*Source of data*
Checking for additional service needs	% of clients checked for at least 2 additional service needs [1]	Observation of client-provider interaction
Identifying additional service needs	Number of additional needs identified for each service Number of additional needs identified per 100 requested services	Study monitoring data
Meeting the additional service needs identified	Number of additional service needs met [2] % of identified additional service needs met [3] Number of referrals made and % provided with services	Client exit survey
Increasing overall service provision	Additional services provided per 100 requested [2]	Client exit survey

[1] The indicator is based on data for all clients except those requesting general health services. These were excluded from the analysis because Government clinics were affected by shortages of medicines. At the end of the study period, many of the general health clients could not have been treated, so service providers did not check for their additional service needs.
[2] These indicators are for all clients. For some services, numbers are too small to detect statistically significant changes.
[3] Since most clients received at least advice or information, only clients treated at the clinic or referred were included.

Preparation and introduction of the screening tool

Baseline assessment

A baseline assessment was carried out in the context of the existing service delivery system to ascertain service provider knowledge and practice on screening, barriers to detecting and addressing service needs, and the extent of missed opportunities for service provision. The methods used were: i) review of any existing screening methods used to detect service needs in the clinics; ii) interviews with all service providers to ascertain current screening practices; iii) observation of client-provider interactions in each site; and iv) exit interviews with the same clients concerning perceived constraints to identifying and providing service needs. The extent of missed opportunities for service provision was assessed through observation of client-provider interaction, analysis of monitoring data and data from client exit interviews. Knowledge among service providers about unidentified service needs was assessed through in-depth interviews with all staff in the study clinics.

Table 2: Number and characteristics of study clinics

Type of Clinic	Intervention			Comparison		
	Number of clinics	Manpower	Client flow	Number of clinics	Manpower	Client flow
Government:						
Family Welfare Centre	1	1 FWV [1] 1 SACMO [2]	50-60 per day	1	1 FWV 1 SACMO	50-60 per day
Community clinic	1	1 HA [3] 1 FWA	20 per day	2	1 HA 1 FWA	20 per day
Satellite Clinic	8 per month	1 HA 1 FWA 1 FWV	60-70 per clinic	8 per month	1 HA 1 FWA 1 FWV	60-70 per clinic
NGO:						
Static clinic	1	1 Manager 1 Paramedic 1 Counselor 1 SSP [4]	50-60 per day	1	1 Manager 1 Paramedic 1 Counselor 1 SSP	30 per day
Satellite clinic	4 sites per day	4 Paramedics 4 SP [5]	20-30 per clinic	2 sites per day	2 Paramedics 2 SP	20 per day

[1] Family Welfare Visitor
[2] Sub-Assistant Community Medical Officer
[3] Health Assistant
[4] Senior Service Promoter
[5] Service Promoter

Development of a screening tool

Following discussion of the baseline findings with the Government and NGO programme managers, different options for a screening tool were considered. The existing Government Family Health Card (FHC) and the NGO ESP card allow recording of the different services offered. However, the Government FHC card is held by the client who may not bring it to the clinic and there is no mechanism to record additional service needs. The ESP card includes several algorithms for different services and hence is not suitable for screening every client. It has eight sections for different services and providers would have to refer to all these, even when not applicable. There was no existing tool for systematic screening in the Government clinics before the intervention. In the NGO clinics, an algorithm-based screening tool had been used to identify additional service needs, but providers had found it complicated and time consuming. Several algorithms used in reproductive health programmes in other countries were reviewed and used as a basis for developing a new screening tool.

The requirements for the new screening tool were: i) short and easy to read and use; ii) an algorithm to identify additional service needs suitable for every type of client; iii) usable while providing the requested service; iv) not time consuming; v) easily replicable and not costly. A very low cost screening tool was developed, which contained two columns, one to indicate the requested service and the other to record additional service needs of the client, accompanying children under five years of age and any at home. A training manual and guidelines were developed for identifying additional service needs of

clients and addressing them. This was used in a two-day training session on the intervention and use of the screening tool, for all service providers from the intervention clinics.

Use of the screening tool

The intervention strategy was to introduce the screening tool for more systematic checking of needs for selected ESP services among all attending female clients and their children under five years, and to address the additional needs identified through services, information, advice, counseling, and referral. Use of the screening tool started in mid-September 2002 and lasted five months until February 2003. After providing the service initially requested by the client, the provider checked for other service needs using the screening tool. For example, if a child was brought for immunization, this was provided and the accompanying adult was asked about other needs of that child and any other children under five years of age at home. Following the sequence in the screening tool, the service provider asked simple questions to identify any needs for immunization, DD and ARI service needs. Women accompanying a child, or attending for services themselves, were asked about current pregnancy, recent childbirth and need for reproductive health services (ANC, PNC, TT vaccination and FP), confirming this if possible by asking secondary questions (e.g. the date of the last TT injection). To identify possible RTI/STD needs, service providers asked standard syndromic management questions about vaginal discharge and lower abdominal pain. Women requesting services for themselves were also asked about the service needs of their children under five years. When an additional reproductive or child health service need was identified, the standard protocol was followed for that particular service if it was available. Referral was made mainly for immunization of children and pregnant women (TT) when these were not available on that day at the satellite clinics, and also for general health services when not available at a particular clinic.

Data collection

Data were collected through: a) review of service delivery arrangements, records and reports; b) in-depth interviews with service providers to ascertain their experience of using the screening tool; c) observation of client-provider interaction and exit interviews with the same clients; d) observation of a small sub-sample of consultations (18 in NGO clinics; 34 in Government clinics) to asses the time spent on screening for additional needs (using a standard time and motion instrument); and e) follow-up interviews with referred clients using a structured questionnaire.

Information on additional services provided was obtained from monitoring data and from the exit interviews with clients. In the Government clinics, a laminated screening tool was given to each service provider, which could be used repeatedly. Service providers were instructed to mark the appropriate service cell in the daily register when an additional service need was identified, and to record when a service, advice or information was given, or referral was made. The NGO clinics did not have a daily patient register in which services were recorded. A simple system was introduced of marking on the screening tool, which was printed on the opposite page of the client encounter form used for billing clients for services.

Sample of clients for observation and exit survey

Exit interviews were conducted with the same clients whose consultation was observed. The sample consisted of about 400 clients in each of the four study areas, to give precision of +/- 5% on estimated

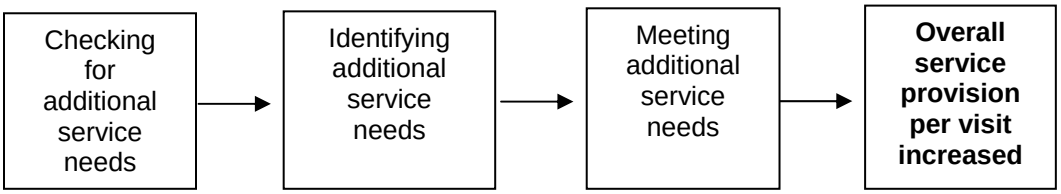
proportions of 50%, assuming unmet need is binomially distributed (Fisher *et al*, 1998). Consecutive clients were selected, ensuring that the client mix was representative in terms of the type of service requested. Those unwilling to participate in the survey were excluded from the sample. On exit, consenting clients were asked about needs for additional services other than the services requested, and whether these had been identified and met at the clinic through a service, advice, information or referral.

Referral follow-up

In the Government community clinic and UHFWC settings, there was an internal referral system. The provider made a temporary mark in the register and if the service was not provided at the clinic by the end of the day, the referral status was noted. In the NGO clinics, referral slips were already used and clients could be identified for follow-up using the referral number. A standard format was used to collect the follow-up data (name of the client, address, purpose of referral, facility and compliance). In both Government and NGO clinics, the researchers checked with the referral clinic whether clients had received the service within one month. If not, they were followed up at home during the next routine quarterly field visit to ascertain if the service had been received, and if not, why not.

Data analysis

The overall objective of the analysis was to evaluate the effectiveness of introducing more systematic checking for service needs using a screening tool in PHC clinics. Both service provider experience of using the tool and its impact on the provision of services to meet the needs of clients, and their children under five years of age, were assessed. The experience of service providers of using the screening tool was assessed on the basis of observed changes in practice, their own views on using the tool, and the time required for checking service needs. Effectiveness of the screening tool was assessed according to the analytical framework shown below.



Indicators

The indicators in Table 1 were compared for the beginning and end of the study period, in the intervention and comparison areas. The extent to which any improvement was intervention-related was assessed on the basis of the change in the indicator (proportion) in the intervention area minus the change in the comparison area. The statistical significance of this change was assessed on the basis of 95% confidence intervals on this intervention-related change. The total number of cases for all types of service was used in this analysis. A much larger scale study with larger sample sizes would be required to identify statistically significant changes for specific services.

In view of the initially high rate of checking for at least one additional service need that was found in the NGO clinics, and negligible checking for three or more additional service needs before and after the intervention in the Government clinics, the indicator used was checking for at least two services that might be needed, other than those requested.

RESULTS

Clients' characteristics and knowledge of services

The characteristics of clients interviewed on exit from the clinics are shown in Table 3. Most of the clients were women of reproductive age. Differences in characteristics in the different samples were generally not significant (based on 95% confidence intervals). There were some exceptions, comparing NGO clients in the baseline and endline samples: mean length of residency (13.7 v 10.0 years) and monthly income (Taka 5530 v Taka 3665) in the intervention clinics, and length of residency (12.7 v 9.3 years) and years of schooling (4.8 v 6.0 years) in the comparison clinics. There were also significant differences among Government clients in the intervention and comparison areas: mean age at baseline (28.4 v 32.2 years) and endline (29.9 v 33.1 years), and length of residency at baseline (13.0 v 18.7 years) and endline (14.1 v 21.5 years). However, these differences are unlikely to affect conclusions about the effectiveness of the screening tool.

Clients' knowledge about the availability of different services is an important determinant of utilization. When asked at baseline what services they knew were provided at the intervention clinics, FP services were the best known among both Government clients (79.9%) and NGO clients (64.5%). The majority of Government clients also mentioned general health services (78.1%) and ANC (66.7%), although fewer mentioned TT vaccination (27.5%) and child immunization (26.3%). The proportions among NGO clients were: general health (39.2%), antenatal care (46.3%), TT vaccination (45.5%) and child immunization (40.0%). Less than 15% of Government and NGO clients mentioned the availability of PNC, RTI, ARI and diarrhoeal disease services.

Service providers' knowledge and practice on screening

Before the intervention, the Government service providers were unaware of the concept of clients' additional service needs and missed opportunities for service provision. NGO service providers understood the concept as providing more services to clients to increase the client/service ratio from 1:1 to 1:2 or more, which had been requested by their programme managers. The main barriers to identifying additional service needs and meeting them reported by service providers were: a) absence of any tool to identify additional needs prior to the study in the Government clinics; b) the screening tool previously tried in the NGO clinics was complicated and difficult to use; c) absence of guidelines for checking and no training on screening in the comparison areas; d) clients did not always have money for the additional user fees when an additional service need was identified; e) time constraints for some clients; and f) heavy client flow in peak hours (10am to 12 pm) inhibited thorough screening. No attempt was made to address these problems in the study period.

All service providers reported that the screening tool was useful for systematic checking, which required little extra time. The average observed time was about 3-5 minutes and all types of service provider reported a similar time in the in-depth interviews. An additional reported benefit was that systematic screening helped to improve client-provider interaction and satisfaction by establishing a dialogue.

Screening for additional needs

Checking of clients for one, two, three or more additional service needs was observed and recorded. As mentioned, there was a relatively high level of unstructured checking in the NGO intervention clinics before the screening tool was introduced: 89.9% checked for at least one additional need, 65.6% for at

least two, and 42.3% for three or more. There was much less checking in the Government intervention clinics before the intervention: 30.0%, 6.7% and 2.0%, respectively.

In the Government intervention clinics there was an overall increase in checking for at least two additional service needs following the introduction of the screening tool, from 6.7% to 16.8% of clients. There continued to be virtually no checking in the Government comparison clinics. The proportion of clients checked for at least two additional service needs in the NGO intervention clinics increased from 65.6% to 82.1% following introduction of the screening tool. However, there was also an increase in the comparison clinics, from a much lower level of 34.2% to 49.5%. The increase in checking in the Government intervention clinics was statistically significant, after deducting the increase in the comparison clinics (Table 4). The increase in checking in the NGO clinics was statistically significant and similar in both the intervention and comparison clinics, so there was little extra increase in the intervention clinics.

Table 3: Characteristics of clients at Government and NGO intervention and comparison clinics

Client characteristics[1] Mean (95% CIs)	**Intervention**		**Comparison**	
	Before	After	Before	After
Government:	(n=429)	(n=423)	(n=433)	(n=283) [2]
Age (years)	28.4 (27.5-29.3)	29.9 (28.9-30.9)	32.2 (31.1-33.3)	33.1 (31.5-34.7)
Education (years)	3.2 (2.8-3.6)	3.3 (2.9-3.7)	3.1 (2.8-3.4)	3.9 (3.4-4.4)
Residency (years)	13.0 (12.0-14.0)	14.1 (12.9-15.3)	18.7 (17.3-20.1)	21.5 (19.6-23.4)
Distance from home (km)	1.5 (1.4-1.6)	1.6 (1.5-1.7)	1.1 (1.1-1.1)	1.1 (1.1-1.1)
Monthly income (Taka)	4629 (4265-4993)	5120 (4682-5558)	4502 (4197-4807)	4909 (4369-5449)
NGO:	(n=380) [1]	(n=425)	(n=300) [1]	(n=379) [1]
Age (years)	26.4 (25.5-27.3)	25.6 (24.8-26.4)	26.6 (25.8-27.4)	25.5 (24.8-26.2)
Education (years)	4.5 (4.0-5.0)	4.9 (0.7-9.1)	4.8 (4.3-5.3)	6.0 (5.6-6.4)
Residency (years)	13.7 (12.6-14.8)	10.0 (9.2-10.8)	12.7 (11.6-13.8)	9.3 (8.5-10.1)
Distance from home (km)	1.4 (1.3-1.5)	1.3 (1.2-1.4)	1.1 (1.1-1.1)	1.1 (1.1-1.1)
Monthly income (Taka)	5530 (4957-6103)	3665 (3469-3861)	6484 (5428-7540)	5300 (4826-5774)

[1]Data from exit interviews

[2]In these clinics the number of clients for some services was less than expected, even in an extended data collection period. To avoid over-representation of other services, a smaller total sample of clients (less than the target of 400) was interviewed.

Identification of additional needs

Table 5 shows the number of additional service needs identified in the intervention clinics in the five-month study period, based on monitoring data. In the Government intervention clinics, 8,248 services were requested and 1,087 additional service needs were identified, mostly for general health (51.7%) and RTI services (31.4%). In the NGO intervention clinics, 16,064 services were requested and 4,792 additional service needs were identified, again for general health (25.0%) and RTI (13.8%), but also for FP (28.1%), tetanus toxoid vaccination (17.7%) and child health services (11.9%).

The second indicator in Table 5 takes into account differences in the number of clients. For every 100 clients requesting RTI/STD services in the Government intervention clinics, 314 clients who had requested other services were found through systematic screening to have RTI/STD symptoms. In the

NGO intervention clinics, for every 100 clients who requested RTI/STD services, 161 other women were found on screening to have RTI/STD symptoms. In total, for all types of services, 30 additional service needs were identified for every 100 services requested in the NGO intervention clinics and 13 in the Government clinics.

Table 4: Percentage of clients checked for at least 2 additional service needs before and after the intervention in Government and NGO clinics

Clinic	% of clients checked for 2 or more additional service needs [1] (total number of clients)		
	Before	After	Difference [95% CIs]
Government:			
Intervention	6.7 (253)	16.8 (250)	+10.1 [+4.5, +15.6]
Comparison	1.3 (238)	1.4 (138)	+ 0.2 [-2.3, +2.6]
Intervention-related change			+ 9.9 [+4.6, +15.2]
NGO:			
Intervention	65.6 (317)	82.1 (442)	+16.5 [+10.2, +22.8]
Comparison	34.2 (295)	49.5 (392)	+15.3 [+7.9, +22.6]
Intervention-related change			+ 1.2 [-5.5, +8.0]

[1] Observation data

Table 5: Additional service needs identified in Government and NGO clinics

Service	Number of additional service needs identified in the 5-month study period [1]		Additional needs identified per 100 services requested [2]	
	Government	NGO	Government	NGO
Child health:				
Diarrhoeal disease	32	126	11	38
Acute respiratory infection	13	242	12	37
Child immunization	3	201	1	13
Reproductive health:				
Tetanus toxoid vaccination	41	848	9	49
Antenatal care	28	115	3	6
Postnatal care	8	52	15	11
Family planning	58	1345	5	25
Reproductive tract infection	342	663	314	161
General health:	562	1200	12	33
All services	1087	4792	13	30

[1] Observation data
[2] Exit interview data

Meeting the additional service needs identified

To assess how much of the additional service need was met through provision of a service or referral, user-reported data from the client exit surveys were used. Table 6 shows changes in the percentage of identified additional service needs that were met, for Government and NGO clinics, before and after the intervention. In the Government intervention clinics, there was an increase in additional service needs met, from 4.6% of those identified to 14.0% following the introduction of the screening tool. There was little change in the comparison clinics, with very few of the additional service needs identified actually being met at the beginning or end of the study period. In the NGO intervention clinics, there was a very large increase in the proportion of identified additional service needs that were met, from 24.3% to 80.3% following the intervention. There was a small increase in the comparison clinics, from 9.7% to 27.0%. Table 6 shows that the increase in the proportion of identified additional service needs that were met in the Government and the NGO intervention clinics, after deducting the increase in the comparison area, was statistically significant (based on 95% confidence intervals).

Table 6: Percentage of identified additional service needs that were met before and after the intervention in Government and NGO clinics

Clinic	% of additional service needs met[1] (number identified)		
	Before	After	Difference [95% CIs]
Government:			
Intervention	4.6 (260)	14.0 (299)	+9.4 [+4.7, +14.1]
Comparison	2.3 (214)	0.0 (206)	-2.3 [-4.4, -0.3]
Intervention-related change			+11.7 [+8.2, +15.4]
NGO:			
Intervention	24.3 (181)	80.3 (147)	+56.0 [+47.0, +64.9]
Comparison	9.7 (165)	27.0 (141)	+17.3 [+8.6, +25.9]
Intervention-related change			+38.7 [+32.8, +44.6]

[1]Data from exit interviews

Referral compliance

The data in Table 7 show that most referrals resulted in identified additional service needs being met, particularly for child and reproductive health services. Service providers in the Government intervention clinics referred a total of 64 clients in the study period, mostly for reproductive health services. Referral compliance was high (84.8%), particularly for reproductive health (87.8%) and child health (85.7%) services. Interviews with clients revealed that anticipation of non-availability of drugs was the main reason for not seeking treatment when referred to a Government facility for general health problems.

The NGO clinics referred a total of 134 cases during the study period, again mostly for reproductive health services. Referral compliance was high for these cases (83.5%) and for child health services (79.2%), but not for general health (35.5%). The main reasons reported for not complying were financial constraints, long distance to the referral facility, and sickness or other constraint within the household.

Change in overall service provision

Table 8 shows the increase in overall service provision resulting from identifying additional service needs through systematic screening and addressing them. In the Government intervention clinics, 3 additional services were provided per 100 requested before the intervention and 10 per 100 requested after introduction of the screening tool. There was negligible additional service provision at the beginning and end of the study period in the comparison clinics. In the NGO intervention clinics, there was a much greater increase, from 12 additional services being provided per 100 requested before the intervention, to 28 per 100 requested after introduction of the screening tool. There was also a small increase in the comparison clinics, from 5 to 10 additional services per 100 requested. The 95% confidence intervals on the changes in overall service provision indicate that the increase in both the Government and NGO intervention clinics (after deducting the change in the comparison clinics) was statistically significant (Table 8).

Table 7: Number of referrals in the 5-month study period and percentage of referred clients that received services

Clinic/service	% of referred clients that received services (number referred)
Government:	
Child health	85.7 (7)
Reproductive health	87.8 (49)
General health	62.5 (8)
Total	84.8 (64)
NGO:	
Child health	79.2 (24)
Reproductive health	83.5 (79)
General health	35.5 (31)
Total	71.6 (134)

DISCUSSION

From a programmatic point of view, it should be more efficient and cost effective to provide multiple services on a single client visit, rather than providing services on separate visits. Physical integration of health and FP services in PHC clinics facilitates this. However, attendance at a clinic does not ensure that all the needs of a client will be met, as clients often attend for one particular service and may not be aware of other service needs they have, or that the relevant services are available (Khatun *et al*, 2001). Earlier studies showed that use of a screening tool helped to identify and address service needs (Vernon and Foreit, 1999). The current study set out to develop and evaluate a screening tool suitable for use in all types of PHC clinic in Bangladesh. It has confirmed the findings of earlier studies that use of a screening tool is feasible, effective for increasing the thoroughness of checking and for identifying additional service needs among clients and their children under five years of age.

Table 8: Additional service needs met per 100 services requested before and after the intervention in Government and NGO clinics

Clinic	Additional service needs met per 100 requested (number of additional service needs met)		
	Before	After	Difference[95% Cls]
Government:			
Intervention	2.8 (12)	9.9 (42)	+7.1 [+3.9, +10.4]
Comparison	1.2 (5)	0.4 (1)	-0.8 [-2.0, +0.4]
Intervention-related change			+7.9 [+5.2, +11.4]
NGO:			
Intervention	11.6 (44)	27.8 (118)	+16.2 [+10.8, +21.5]
Comparison	5.3 (16)	10.0 (38)	+4.7 [+0.7, +8.6]
Intervention-related change			+11.5 [+7.1, +15.9]

Previous studies in Guatemala, Peru and Mexico focused on needs for reproductive health services among women of reproductive age (Vernon *et al,* 1999; Leon *et al,* 1998). The current study found that child health service needs can also be identified by asking women attending clinics for reproductive health services about the needs of their children aged under five years. Conversely, reproductive health needs were also identified among women seeking services for their children. Algorithm-based screening has been successfully tried in central clinics (Vernon *et al,* 1997 and 1999; Khanam, 2002; Leon, 1998), while the current study found that a screening tool could also be effective in different PHC settings, including outreach clinics operated by less qualified health workers. All types of staff were able to identify additional service needs in Government clinics, particularly RTI/STD symptoms and general health problems. In the NGO satellite clinics, significant additional needs were identified for these services and also for FP, TT vaccination and child health services.

Several factors, including contextual circumstances and aspects of the study design, should be considered as limitations of the study. Some of these reduced the measured impact of the intervention and the extent to which improvements could be attributed to more systematic screening for service needs. For example, in the Government clinics, service providers were uncertain about whether integrated health and FP services would continue to be provided, as there was opposition to this within the MOHFW, there was a continuous shortage of medicines and other supplies throughout the study period, and one community clinic was closed down. These factors probably had a negative effect on the Government service providers in terms of their efforts to screen for additional service needs and meet them. In the NGO clinics there was uncertainty throughout the period concerning the funding for the NGO, and there was no Medical Officer in the NGO intervention area. Also, the NGO comparison clinics experienced a change in the controlling authority, which resulted in more supervisory visits and training. This could have contributed to improved screening practices, even in the absence of a screening tool.

There were also limitations of the study design, particularly regarding site selection, which was not under the control of the researchers. The sites were selected by the study partners, largely for practical reasons of organizing the study. There was already a relatively high level of unstructured screening before the intervention in the NGO clinics, which clearly limited the potential for improvements to be made. Checking for at least one additional service need was already part of the NGO's protocol for some services (eg. checking for RTI symptoms among FP clients and TT vaccination status among ANC

attenders). On the other hand, checking for three or more additional service needs, other than those requested, would not be applicable for some clients (eg. those attending for ANC would not need FP or PNC). However, checking for at least two additional service needs was possible for all clients, since their children under five years could need immunization, or treatment for ARI or diarrhoeal disease. There was a significant improvement in this selected indicator in the intervention clinics, which probably resulted from use of the screening tool. The improvement in the NGO comparison clinics could have been due to increased attention to screening through diffusion of the concept within the NGO programme.

A further limitation of the study was that the intervention clinics (Government and NGO) were conducting more screening than the comparison clinics at baseline, so the intervention was not conducted in the worst performing sites or randomly selected sites. However, one unplanned advantage of this was that the study was able to show that improvements could be made from initially high baseline levels of unstructured screening (NGO clinics) as well as from low baseline levels (Government clinics). There was a statistically significant increase in the proportion of clients checked for at least two additional service needs from a very low level in the Government intervention clinics (6.7% to 16.8%), and a much greater increase from an already high level in the NGO intervention clinics (65.6% to 82.1%). Overall, the results were quite comparable with those of earlier studies, such as that in Guatemala where systematic screening resulted in 24% more checking (Vernon *et al*, 1997), and in Bangladesh where routine screening on up to 90% of clients was achieved in a fixed site clinic in Dhaka City (Khanam *et al*, 2002).

In addition to finding improvements in the amount of checking for at least two additional service needs following the introduction of more systematic screening, the study confirmed that a high level of additional service need exists, which can be identified through screening. Use of the screening tool resulted in 13 additional service needs being identified per 100 services requested in the Government clinics and 30 per 100 in the NGO clinics. Much of this was due to additional needs for RTI/STD services being identified by asking clients about symptoms when they came for some other service. The monitoring data showed that for every 100 clients who attended for RTI/STD services, 314 other clients who came for another service were found to have RTI/STD symptoms in the Government clinics, and 161 per 100 in the NGO intervention clinics. This supports the findings of previous studies in fixed site clinics in Bangladesh (Khatun, 2001; Khanam, 2002) and World Bank reports of high levels of need for RTI/STD services in developing countries, which will go undetected without screening (Pachauri, 1998). Given the apparent sensitivity about RTI/STD symptoms, or lack of awareness of the need to consult a service provider about them in Bangladesh, it is encouraging that needs could be identified through systematic screening that could be met at the same clinic, at least in the NGO areas. The high level of additional need identified for RTI/STD services may also reflect the very low proportion of clients who knew that the relevant services were available. However, it should be noted that additional service needs were also identified for services that were relatively well-known to NGO clients, such as FP and TT vaccination.

The introduction of more systematic screening was also associated with other improvements in service provider practice. A higher proportion of identified additional service needs were met. In the Government clinics, the study identified clear intervention-related improvements. The proportion of the identified additional service needs that were addressed increased from 4.6% to 14.0% in the intervention clinics, while there was virtually no provision of additional services, at the beginning or end of the study period, in the comparison clinics. Provision of services to address the identified additional needs increased considerably more in the NGO intervention clinics, from 24.3% to 80.3%. This is more

comparable with the study findings in Peru where 64% more services were provided following the introduction of systematic screening (Leon *et al*, 1998). In that study, additional services were provided on a follow-up clinic visit after identification of reproductive health service needs through use of a self-screening tool. Self-screening was not attempted in Bangladesh and may not be feasible given the low level of female literacy in rural areas. The study in Peru also found that revenue for the clinic increased. Government PHC services in Bangladesh are intended to be free at the point of delivery. Many NGOs collect user fees, so there is potential for them to increase revenue. However, as mentioned, some clients did not have money for additional services as they had brought just enough for the requested service. The study had no particular policy on this, and as a result some service needs may not have been addressed. Local strategies will be needed to allow for this if the intervention is to be scaled up.

An important finding of the study is that the overall number of services provided increased significantly following the intervention, taking into account client flow (additional service needs met per 100 requested). This should be considered in relation to the service inputs required. There was an assumption that service providers had spare capacity for systematic screening and to address additional needs identified. This was largely borne out as service providers did not find the screening very time consuming, although being thorough posed some problems at peak hours of client flow. In addition, some clients did not have time to wait for the additional services and strategies may be needed to accommodate local preferences for clinic attendance times. An appointments system could be used to address some additional service needs, but this was not tested as it had met with limited success in an earlier study in urban Bangladesh (Hossain, 2002). Among other programmatic requirements, the study identified the need to have support for the intervention at policy level, sufficient supplies to address the additional service needs, adequate supervision and referral compliance. Follow-up of all referral cases confirmed that most of the study clients with additional reproductive and child health service needs received the required service at the referral facility. Mechanisms for referral and ensuring compliance will need to be more widely in place if the intervention is to be scaled up.

CONCLUSIONS

The study developed and introduced a screening tool to identify additional needs for services among clients attending PHC clinics, other than those requested. Its use fostered a more systematic approach to screening among different types of service provider in different clinic settings. Service providers found the screening tool user friendly, less time consuming than unstructured screening, and beneficial for facilitating client-provider interaction. Use of the screening tool led to an increase in the number of additional service needs identified per 100 services requested, especially for RTI/STD symptoms. The benefits of systematic screening extended beyond an improvement in the thoroughness of checking and increased identification of additional service needs. It was associated with an increase in overall service provision. The proportion of additional service needs that were met with services at the clinic or through referral increased, as did overall service provision in relation to one clinic visit. These improvements were statistically significant, both in clinics with initially low and high levels of screening and meeting additional service needs.

Earlier studies of systematic screening in Guatemala led to it being introduced throughout the national PHC programme (Vernon and Foreit, 1999). The results of this study in Bangladesh suggest a screening tool is feasible in different PHC settings and could significantly increase coverage of reproductive and child health services. Before scaling up nationally, the screening tool should be introduced in selected sub-districts served by Government and NGOs. This would allow a large enough study to evaluate cost effectiveness and impact on specific reproductive and child health services.

ACKNOWLEDGEMENTS

This study received financial support from the United States Agency for International Development (Bangladesh) under its Family Health Research Project.

REFERENCES

Barkat, A., Hawlader, S., Barkat-e-Khuda, Ross, J.A. and Lal Bose, M. 1997. *Family Planning Unmet Need in Bangladesh, Shaping of a Client-oriented Strategy*, University Research Corporation, Dhaka, Bangladesh.

BDHS. 2001. *Bangladesh Demographic and Health Survey, 1999-2000*, National Institute of Population Research and Training, and Mitra Associates, Dhaka, Bangladesh.

CIET. 2001. *Service Delivery Survey: Second Cycle, 2000. Health and Population Sector Programme, 1998-2003, Bangladesh*. Ministry of Health and Family Welfare, and CIET- Canada, Dhaka, Bangladesh.

Fisher, A.A., Laing, J.E., Stoeckel, J.E. and Townsend, J.W. 1998. *Hand Book of Family Planning Operations Research Design, 2nd Printing*. Population Council, New York.

Hossain, S., Sarker, S., Khanam, R., Islam, Z., Saha, N.C. and Routh, S. 2002. *Operationalizing an Urban Essential Services Package Clinic: Findings and Implications*. International Centre for Diarrhoeal Disease Research (ICDDR,B) Special Publication No. 115, Dhaka, Bangladesh.

Khanam, R., Hossain, S., Sarkar, S., Musa, S.A.J. and Routh, S. 2002. *Meeting Additional Needs of Clients by Addressing Missed Opportunities*. ICDDR,B Working Paper No. 152, Dhaka, Bangladesh.

Khatun, J., Chadry, R.N. and Tariq, A. 2001. *Assessment of Met and Unmet Reproductive and Child Health Needs and Use of Essential Services Package in Urban NGO Clinics of Bangladesh*, ICDDR,B Working Paper No. 156, Dhaka, Bangladesh.

Lantis, K., Green, C.P. and Joyce, S. 2001. *Providers and Quality of Care: New Perspective on Quality of Care; No. 3.* Population Council and Population Reference Bureau, New York.

Leon, F.R., Velasquez, A., Jimenez, L., Reckemmer, A., Planas, M.E., Durand, R. and Calderon, A. 1998. Increasing use of reproductive health services in Peruvian clinics, in: Foreit, J.R. and Frejka, T. (eds), *Family Planning Operations Research, A Book of Readings*. Population Council, New York, pp. 239-245.

Mendez F., Lopez, F., Brambila, C. and Burkhart, M.C. 2004. *Screening for family planning needs: an operations research project in Guatemala. BioMed Central International Health and Human Rights;* 4 (2). (http//www.biomedcentral.com/1472-698X/4/2)

Miller, K., Miller, R., Askew, I. Horn, M.C. and Ndhlovu, L. 1998. *Clinic-Based Family Planning and Reproductive Health Services in Africa: Findings from Situation Analysis Studies*. Population Council, New York.

MOHFW. 1998. *Health and Population Sector Programme 1998-2003; HPSP: Program Implementation Plan, Part 1*. Ministry of Health and Family Welfare, Government of the Peoples' Republic of Bangladesh, Dhaka, Bangladesh.

Pachauri, S. 1998. Unmet reproductive and sexual health needs in South Asia, *Journal of Health and Population in Developing Countries*; 1 (2): 29-39.

Pérez-Palacios G. 1997. *Linking Reproductive Health Services: Summary of Results, Final Report.* Mexico City: INOPAL III/DGSR/SSA and Population Council.

Perry, H.B. 1999. *Reaching "Health for All": Emerging Strategies from Bangladesh for the Twenty-first Century*. The World Bank, Dhaka, Bangladesh.

Romero L., Barrios C. and Vernon R. 1997. *Vinculación de los Servicios de Salud Reproductiva: Observación de la Consulta en Centros de Salud.* Mexico City: INOPAL III/Dirreción General de Saluda Reproductiva (DGSR)/Secretaria de Salud (SSA) and Population Council.

Routh, S., el Arifeen, S., Jahan, S.A., Begum, A., Thwin, A.A. and Baqui, A.H. 1997. Developing Alternate Service Delivery Strategies for MCH-FP Services in Urban Areas: Findings from an Experiment. *ICDDR,B Working Paper no. 41*, Dhaka, Bangladesh.

United Nations. 1995. *Population and Development, vol 1: Programme of Action Adopted at the International Conference on Population and Development, Cairo, 5-13 September 1994.* Department for Economic and Social Information and Policy Analysis, United Nations, New York.

Vernon, R. and Foreit, J. 1999. How to help clients obtain more preventive health care. *International Family Planning Perspectives*, 25 (4): 200-202.

Vernon, R., Ottolenghi, E., Solorzano, J., Santamarina, L.R., Arroyo, J.J. and Barrios, C.L. 1997. *Systemic Offering of Family Planning and Reproductive Health Services in Guatemala, Final Report*. Population Council, Guatemala City, Guatemala.