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Who benefits from public health expenditure?

Research Paper 22

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Also available;

Public-private mix for health sector development: proceedings of the fourth annual conference, 25-26th July 1999

Bangladesh National Health Accounts 1996/97, Final report, Data International/ Health Economics Unit.

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Executive summary

Introduction

It is increasingly recognized that public spending does not always benefit those for whom it is intended. The 2000/01 World Development Report suggests that while public financing of services "is a core element of poverty reduction", too often higher public spending does not translate into better services for the poor because "programs for poor people are often of low quality and unresponsive" and the "incidence of public expenditures is often regressive" (World Development Report 2000/2001, page 81).

A central feature of the Health and Population Sector Programme (HPSP) is to increase the accessibility of services to the poorest and most vulnerable in society. In order to achieve this HPSP has been attempting to increase the proportion of funding being used to finance services most used by the vulnerable,in effect to increase the inputs directed at the poor. As background to the 1999-2000 Health Public Expenditure Review an exit survey was carried out to assess the level of benefits accruing to the most vulnerable to begin to answer the question "who really benefits from public health spending"?

Findings of the exit survey

- The survey found that overall women and girls make use of upazila and below upazila level services more than men and boys accounting for about 54 percent of visits. Excluding reproductive health services usage appears to be similar.
- Men and boys make greater use of services at all ages except during the reproductive years 20-49.
- The lowest income quintile accounts for around 35 percent of visits compared to the richest who account for 14 percent of use.
- It appears that on average the poor wait longer for services than the rich.
- Most user payments for service occur at upazila level. Few payments were recorded at union or field level.
- User payments for services, including tickets, medicines, diagnostic fees and unofficial fees to staff, are slightly higher for the poor compared to the rich. In relative terms the poor are paying much more for the use of upazila services.
- As noted by other studies, medicine prescribing practices appear to be indiscriminate and often not linked to appropriateness of use.

Benefits Incidence Analysis

In order to quantify the financial magnitude of benefits accruing to different groups of the population it is necessary to combine information on utilisation with data on unit costs. A separate study obtained unit costs of services for the main ESP components delivered at Upazila level and below. Combining these data with utilisation suggests that:

- Benefits per capita accruing to women and girls amount to about 170 Taka per year for ESP services while men and boys benefit from around 66 Taka per year; but
- Excluding reproductive health services, benefits to men and boys exceed those to women and girls by around 10 taka per capita.
- Benefits to the poorest income quintile exceed those to the richest suggesting that attendances at facilities are generally pro-poor.
- The simple benefits-incidence analysis assumes that the process of accessing care is equivalent for all patients yet evidence from the exit survey suggests that this is not the case.
- The results of the BIA need to be adjusted to take into account both inequitable and inefficient processes of care.
- Further investigation of the process of receiving care by the poor is required paying attention to the individual care seeking process for specific diseases.

Introduction

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A core feature of the Health and Population Sector Programme (HPSP) is to increase the accessibility of services to the poorest and most vulnerable in society. In order to achieve this HPSP has been attempting to increase the proportion of funding being used to finance services most used by the vulnerable, in effect to increase the inputs directed at the poor. As background to the 1999-2000 Health Public Expenditure Review (HEU and MAU, 2000) an exit survey was carried out to assess the level of benefits accruing to the most vulnerable to begin to answer the question "who really benefits from public health spending"? The results of this survey should be read along with other similar surveys, notably the CIET survey delivery survey which examines the use of services using a household survey methodology (CIETcanada, 2000).

What is benefits incidence analysis?

A number of ways are proposed in the literature to measure the benefits of public spending. Welfare analysis based on economic theory suggests that consumer surplus, the measurement of difference between consumer willingness to pay for service obtained and the actual price of the commodity, should form the basis of benefit valuation. The difficulties inherent with measurement of consumer surplus has led to the development of a more pragmatic technique, although one with weaker theoretical foundation, the benefits incidence analysis. The objective in conducting a BIA is to measure expenditure accruing to different income groups. What this method does not do is attempt to estimate the welfare accruing from these expenditures and implicitly assumes that utility valuation of public expenditure is equivalent across income groups[1].

There are a growing number of studies throughout the world that analyse public spending based on the BIA methodology. BIA is most common in the health and education sector where the evidence is that public spending is most pro-poor, in that it is most likely to favour the poorest income group, at the basic levels of service (Yaqub, 1999). Comparing benefits incidence for health and education across a range of countries, the study found that in most cases benefits accruing to the richest quintile of the population exceeded those to the poorest. This was almost universal for tertiary and secondary level medical care and schooling. For primary schooling benefits tended to be higher for the poorest

[1] If we assume that the utility of income function is concave the result is that the value to higher income groups of public spending is over-estimated and value to low income groups is under-estimated. An implication is that even if expenditures are equivalent for each income group, welfare could be boosted by reallocating from the rich to poorer income groups.

quintile. In the case of primary health service benefits to the poor tended to be greater than for higher levels of care although only a few countries registered higher benefits for the poor relative to the rich.

In general it appears that even where the poorest do benefit more than the richest groups, in few countries do the expenditures have a redistributive effect in transferring resources from rich to poor. Some socialist countries have tended to be more successful in this regard. A study on services for safe motherhood, including antenatal and delivery care in Vietnam, for example, found that services were weakly pro-poor in that while there was more or less equal access across income groups, subsidies did not significantly *favour* the poor relative to the rich (Knowles and Behrman, 2000).

Summarising the international evidence, therefore, seems to suggest that in general:

- education services have been more successful in targeting the poor than health programmes,
- primary health care spending is more likely to reach the poor than secondary or tertiary care,
- even primary health care does not appear to have a radically re-distributive effect in most countries – at best consumption is similar for rich and poor.

In Bangladesh available evidence supports the conclusion that it is the primary services that are most likely to be pro-poor even if only weakly so. Data on utilization, collected prior to HPSP, shows that while the relatively rich make greater use of hospital services, services at upazila and below are used disproportionately by the poor (reported in Yazbeck, 1999).

Some BIA studies have attempted to measure levels of public expenditure accruing to men and women, and girls and boys (Government of Sri Lanka 1998). This study found that 55% of the total health recurrent budget benefited females. It identified the need for further disaggregated gender based beneficiary analysis, for example for inpatient and outpatient care at different levels of the health delivery system. As many development programmes worldwide increasingly include gender equity goals, the BIA methodology offers one way of assessing and monitoring gender equity impact.

Methodology

The main steps of a BIA are relatively straightforward (outlined in more detail in Demery, 2000):

- Obtain information on use of facilities by income, gender or age groups for the service of interest,
- Obtain unit expenditure data (per patient treated) for the service of interest,
- Multiply the unit expenditure by the utilization rates to obtain average spending by income and other groups.

Conceptually straightforward, most of the complexity is in obtaining adequate data. Although management information systems usually provide information on the numbers of patients receiving treatment these are not usually disaggregated by different income. Indeed to require such data on a routine basis would be a considerable burden and one that is probably not possible to achieve with any degree of reliability. However, increasingly routine management information systems are being asked to record service use by gender and age, although often meaningful categorization (for example on the basis of ESP service use) may still be difficult. It is necessary, therefore, to rely on other sources of data, usually sample surveys, to provide information on the socio-economic composition of patients and other characteristics. One other approach is to base the examination of equity on the allocation between geographic areas with different levels of income. This is a useful approach when examining broad issues of geographic allocation for budget distribution purposes and discussed further in another research paper (Hossain, Ensor et al., 2001). The concern with a BIA is usually a micro-economic one in examining the allocation between households within a given geographic area.

A second level of complexity is in obtaining information on unit expenditure. If the concern is with overall distribution of public spending then the task is simple – a straightforward division of total public service spending by the number of patients. This ratio can then be multiplied by the utilisation in each group to estimate total income based benefits. More detailed data are required if the focus of interest is on the distribution of benefits at specific levels of service or for particular services. One of the main objectives of HPSP is to increase access to essential services by vulnerable groups. The central focus of this strategy is the essential service package delivered through facilities at upazila and below. The main question for the BIA is, therefore, to what extent the benefits of the ESP reach the poor and most vulnerable in the community.

For the purposes of the BIA results reported here we use two main data sources. First an exit survey of patients conducted during the summer of 2000 in two divisions of the country. Second, a survey of upazila, union and community level costs divided by the main ESP subcomponents (Ferdousi, 2001) These two sources are used to derive estimates of BIA across socio-economic, gender and age groups.

One assumption, that may not always be made explicit, is that the per patient benefits of service are not related to the dimension – such as income or sex – being compared. A BIA often assumes that a visit for a particular service yields the same health care and health benefits regardless of whether the person receiving treatment is poor or rich, highly educated or illiterate, male or female. There are good reasons to question this fundamental assumption. The experience of treatment may be altogether different between these groups, rendering questionable any analysis based on this assumption. We will return to this issue later in the paper.

Survey structure

An exit survey of patients was conducted to obtain information from patients who have just received treatment on the nature of their illness, the diagnosis (where given) treatment received and follow up prescriptions. Later analysis attempted to place all

patients into one of the main ESP categories – child health (CH), reproductive health care (RH), communicable disease control (CDD should it be CDC?) and limited curative care (LCC). This proved to be one of the most difficult parts of the analysis. The survey also obtained information on patient characteristics including area of residence, age, sex, consumption of household, occupations of household wage earners and education. The English version of the questionnaire is attached as annex one.

The survey was conducted in two divisions – Barisal and Rajshahi – in a range of facilities at upazila level and below. Both outpatients and inpatients were sampled. At the upazila level, the public sector provides ESP services through the Upazila Health Complexes (UHCs). At the union level two types of facilities provide ESP services. These are Rural Dispensaries (RD) or Union Sub-Centers, on the health side, and Family Welfare Center (FWC), on the family planning side. It should be noted that in some Unions public health services are provided through the integrated Union level facility, Union Health and Family Welfare Center (UHFWC).

The sample facilities included UHCs at the upazila level and RDs/USCs, FWCs and UHFWCs at the union level. It should be noted that UHCs provide both outpatient and inpatient care while Union level facilities provide outpatient care only. Hence, the survey included both inpatients and outpatients.

To conduct the study, division level information regarding average utilization rates of OPD services at UHCs was collected from the Directorate General of Health Services (DGHS). After the information was compiled, annual per capita utilization rates at UHCs were calculated by dividing the total number of OPD visits by the population of that division. The division with the highest utilization rate (Rajshahi) was selected. Barisal was selected because, in addition to having the lowest average utilization rate, it was also among the per capita lower utilization rate group.

Table one: Utilisation of Outpatient Services in UHCs by Division

Division	Number of UHCs	Children	Male	Female	Total	Average	Percentage
BARISAL	38	229396	394760	343874	968030	25474	6%
CHITTAGONG	89	839368	885712	970974	2575474	28938	17%
DHAKA	119	924669	1697323	1729094	4348092	36539	29%
KHULNA	59	433708	572636	670601	1676945	28423	11%
RAJSHAHI	125	988717	1845991	1702784	4543492	36348	30%
SYLHET	35	311021	411033	413623	1135677	32448	7%
TOTAL	465	3726879	5807455	5830950	15247710	32791	100%

Source: Health Information Unit, DGHS

Districts from each selected division were clustered into two groups – one with higher than average utilization rates and the other with lower than average utilization rates. One district was selected from each of these groups by using computer generated random numbers. The randomly selected districts were Patukhali and Barisal from the Barisal division, and Rajshahi and Nilphamari from the Rajshahi division. Once the districts were selected, the UHCs in those districts were grouped similarly according to higher and

lower than average utilization rates. Four upazilas from the two selected districts were then selected randomly from those two groups – two from the higher than average group and two from the lower than average group. Table 1 provides the coverage of upazilas in each district.

The Unions were selected according to their distance from the UHC. The Union Sadar, where the UHC is usually located, was of course selected. From the remaining Unions, a Union facility situated close to the UHC and one that was situated at a remote distance from the UHC was selected. However, this criterion could not be followed in a number of cases because of the non-availability of personnel and because some of the union level facilities were found to be closed when visited. For instance, in Nilphamari, four FWCs had to be visited to obtain information from one FWC. Table two provides data on the geographical coverage of the survey.

Table two: Geographical Distribution of Samples

Division	District	Upazila	Facilities		
			UHC	RD	FWC
Barisal	Barisal	Babuganj, Banaripara	2	2	2
	Patuakhali	Bauphal, Kalapara	2	2	2
Rajshahi	Rajshahi	Godagari, Paba	2	2	2
	Nilphamari	Kishoreganj, Sayedpur	2	2	2

Sample Size

The following formula was used to estimate the minimum sample size:

$N = \{z^2\ p(1-p)e^2\}*d$

Where
p (prevalence of the phenomenon) = 0.12 (i.e., 12% of the population visiting public health facilities)
e (Precision) = 3%
z (at 95% confidence level) = 1.96
d (Design effect) = 2

The sample size obtained following the above formula is 900. Allowing 6% 'non-sampling error' the minimum sample size was 960 patients.

From each UHC 60 patients were interviewed while 30 patients from each of the RDs/USCs and FWCs were interviewed. For UHCs, the distribution of inpatient and outpatient were determined proportionately. The survey was conducted during the period of August-September, 2000. Two teams of Field Investigators (FIs) comprising 15 male and female FIs conducted the exit interviews.

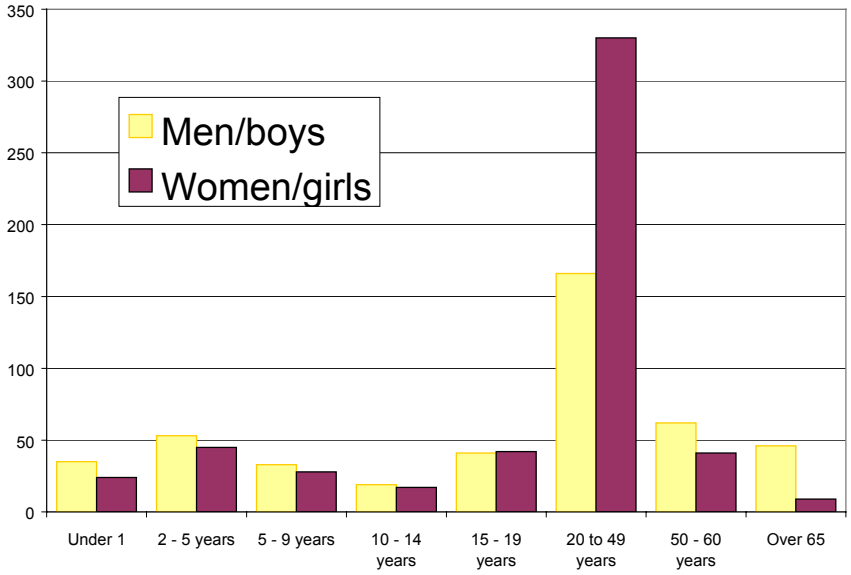
In addition, staff from the HEU applied the same questionnaire in facilities in the Chittagong and Sylhet areas. The methodology used was identical and the survey results were later merged into a consolidated data set.

Results of the exit survey

In this section we report on usage of public health services by age, sex and socio-economic group. Information reported is for visits to the facility or, for inpatients, for episodes treated in hospital. The figures are unadjusted for the intensity of quality of service provided and hence can be categorized as a measure of 'crude usage'.

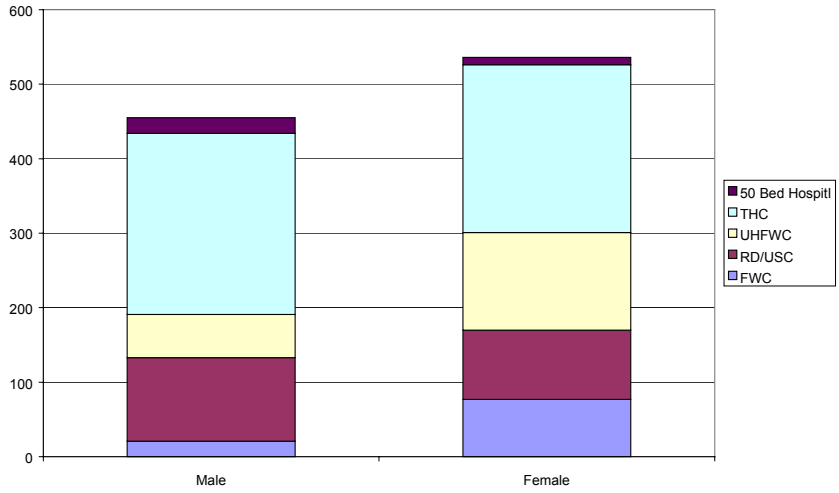
Utilization by age and gender

Figure one: use of services by age and sex



Overall the survey found that more than 54 per cent of utilization was by females/girls. This is in line with MIS data , for 1999/2000, which indicate that around 53 per cent of outpatient attendees are women. Unsurprisingly much of this utilization is by the 20-49 age group, where utilization by women is double that of men (figure one, A2.1). For all other age groups male utilization was higher.

Figure two: utilization by facility and sex



At the delivery level male utilization exceeds female use of service at all levels of service with the exception of field level and Union Family Welfare Centre (figure 2 & A2.5). Much of the service received at these levels is principally reproductive, although patients also receive other services at the same time on child care and general health promotion advice (BCC).

Unlike other types of care, although reproductive health services are principally obtained by women they are of benefit to both men and women in affording protection from pregnancy and assistance with the birth and protection of the child. Inclusion of reproductive services tends to exaggerate female use of services particularly during the peak fertility period (15-44). If reproductive services are excluded from services provided then total crude utilisation for men and women is identical.

ESP sub-components

The survey attempted to examine use of services by ESP category. These are defined as follows (GOB, 1998):

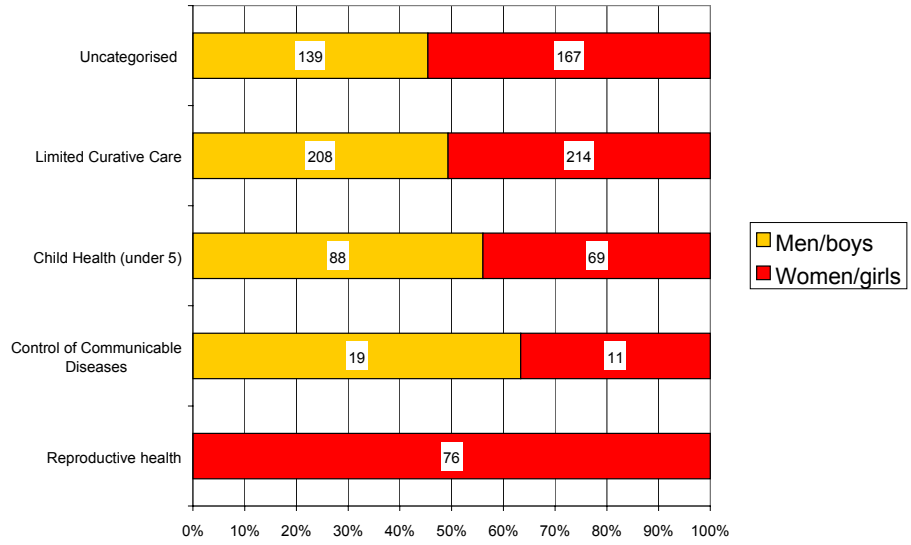
- Reproductive health care - including safe motherhood (essential obstetric care, antenatal and post natal care), family planning, other reproductive services including sexually transmitted diseases;
- Child health care – including acute respiratory infections, diarrhoeal diseases, vaccine preventable disease and adolescent care implemented through an integrated management of sick child approach;
- Communicable disease control – including tuberculosis, leprosy, malaria, filarial, kala-azar and emerging diseases;
- Limited curative care – concentrating on first aid for trauma, medical and surgical emergencies, asthma, skin diseases, eye, dental and infectious ear diseases.
- Behaviour Change Communication is being implemented as a way of influencing health behaviours and health care seeking practices across all of the ESP components.

One of the most problematic aspects of the survey was assigning patients to ESP categories. The questionnaire asked for information on patient symptoms, treatment given, information given to patients and prescriptions. It was hoped that through a variety of questions the ESP category could be assigned.

For a substantial group of patients, assignment of the ESP category proved relatively straightforward. Patients requiring contraceptive supplies or family planning advice could be categorized by reason for visiting. Similarly, most children could be assigned to the ESP category of child health. Others were categorized using a combination of presenting symptoms, diagnosis and treatment offered. Those presenting with trauma could be categorized into the limited curative care group. People presenting with various symptoms but later given referrals for actual or probable TB could be placed in the Communicable Disease group.

The above procedure still left a substantial minority, just over 30 percent of cases, uncategorised and probably impossible to categorise (see figure 3 & table A2). Many reported general symptoms such as 'headache' or 'fever'. When asked what the doctor had said they frequently said the 'doctor said nothing' or 'nothing was wrong'. Interestingly most of these were subsequently required to obtain medicines, many of which seemed un-related to the symptoms or diagnosis. This was even true when the doctor said that nothing was wrong. This finding is similar to other studies that have found excessive, irrational and inappropriate prescribing for a wide range of symptoms (see for example Ahmed, Chowdhury et al., 2000).

Figure three: utilization by ESP category



Examining the use of ESP services by sex, male utilization was higher for both control of communicable diseases and child health. For limited curative care service use was evenly divided. Women and girls made up the majority (55%) of the uncategorized group. This group includes a small number of patients that were referred for additional tests and some that were seen and told nothing was wrong. Most of this group, however, (more than 91 percent) were prescribed medicines.

It is important to emphasise that, in highlighting how difficult it is to categorise some patients into an ESP group, there is no implication that people allocated to this group should not be provided with a service. Many of the people in this group presented with symptoms that could have implied a number of diseases included in the ESP. It is a key function of a good primary service to filter these cases – identifying the serious illness and discharging those with self-limiting disease.

The concern, as illustrated in the next section, is that (1) the majority of these unspecified illnesses are being treated with medicines, many of which may be inappropriate and ineffective, and (2) these market transactions for medicines may dominate the resources actually provided through the public budget. If there is also a financial interest, by medical staff, in over-prescribing, this can easily distort the pattern of resource use so that excessive attention is paid to prescribing for any disease and insufficient effort paid to proper triage and adequate care for the priority illnesses of the ESP.

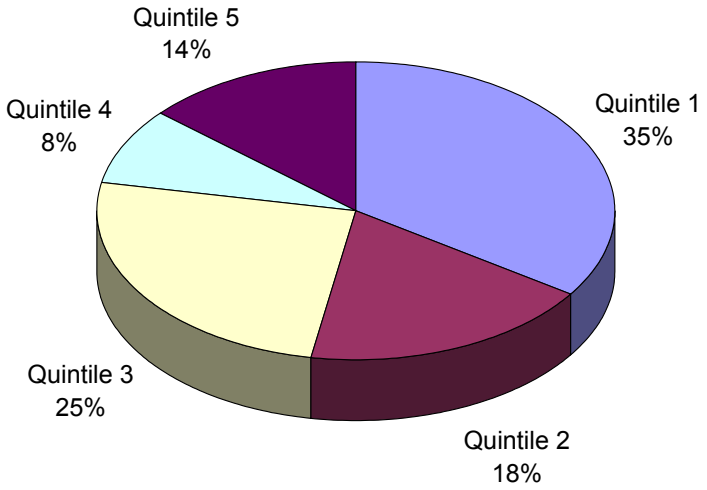
It also demonstrates how difficult it is to introduce and implement a selective primary care approach.

Utilisation by income group

The survey obtained information both on income and consumption. Consumption was estimated by the patient or patient's guardian if a minor. Income was based on questions about multiple employment.

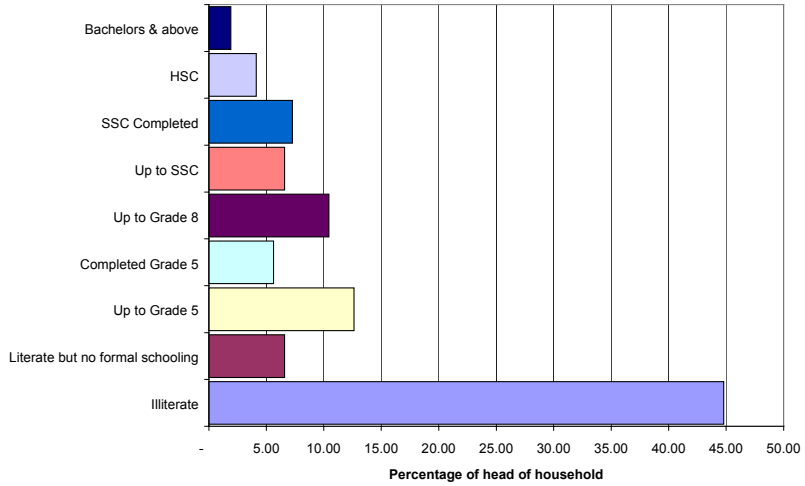
In order to assign patients to appropriate income quintiles, information on rural household income boundaries collected as part of the last household expenditure survey was used (BBS, 1999). These boundaries closely correlate with other sources such as the Rural Poverty Monitoring Survey (BBS, 1998). These were converted into 2000 equivalents by adjusting the values in line with inflation. Patients were then assigned according to their monthly reported income from three main sources: regular employment, household production and income from land.

Figure three: utilisation by income quintile



The survey results suggest that use of services at upazila level and below is dominated by the bottom two quintiles (figure three & A2.3). The poorest 40 per cent of the population account for 53 per cent of use at these levels.

Figure four: service users by education of head of household



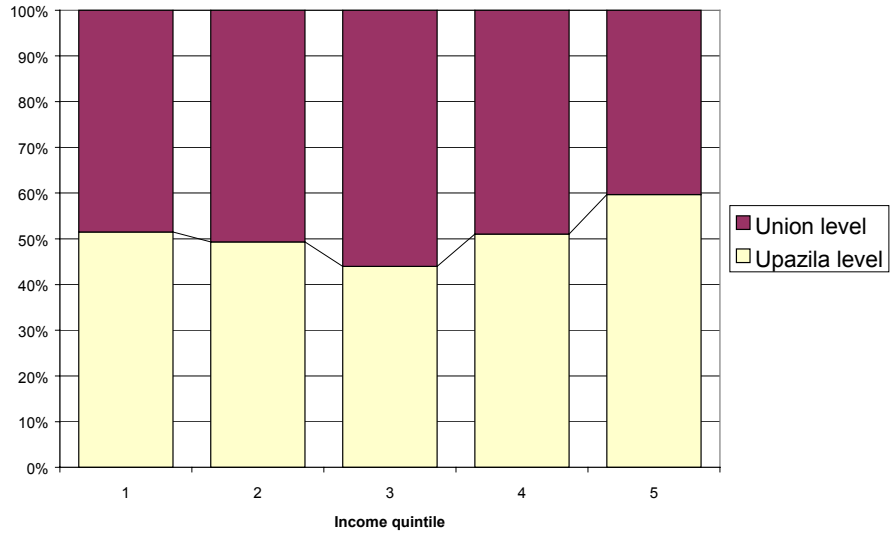
In about 45 percent of cases service users came from households with an illiterate head (figure four & A2.2). The percentage is slightly higher (54%) where the household is headed by a woman although the proportion of users in this category is small (less than 6 percent). The level of reported illiteracy of patients (over 15) is similar at 43 percent. Given that most statistics place the level of illiteracy of the population in general at between 50 and 60 percent, the results suggest patients with higher levels of education are more likely to utilize public services.

The level of utilization reported for low income groups is slightly surprising. Analysis of the last household expenditure survey suggested that the poorest 40 percent accounts for only around 35 percent of utilization at upazila level, rising to 39 percent for community services (reported in Yazbeck, 1999). Figures from the recently conducted CIET survey

delivery survey also suggest lower utilization among the poor (making up 28% of the sample) relative to the rest, although this includes all government facilities and does not distinguish between tertiary and district facilities and the main ESP (upazila and below) levels (CIETcanada, 2000). The higher results reported here could be explained by a number of reasons. The first is that this exit survey is a much smaller sample than the nationally representative expenditure survey. Data from the latest survey will be available later in 2001 and it will be important to compare the utilization figures reported.

Second, the differences may partly be attributable to the bias of recall. Demery suggest that the problem of recall, always present in household surveys, may be greater for the poor with less education (Demery, 2000). If this is so then utilization patterns reported in household surveys will tend to exaggerate the extent of inequality in use of services.

Figure five: proportional service use by income.



There is a slight tendency for the richest group to use services more often at upazila level while the poorest group tends to utilize union level services (figure five). This tendency is not that pronounced and there is no consistent trend between groups. It may reflect locational factors, with the poor tending to live closer to union, rather than upazila, facilities.

Process of seeking care

A central implicit assumption behind the service use statistics presented earlier is that the quality of services, once care is sought, is similar between patients with similar diseases. Yet this may not be the case. The exit survey basically records those that *exit* the facility no matter what services they receive once there. In order to obtain an accurate measure of the benefit actually received, it is important that a quality adjustment to the basic utilization statistics is made.

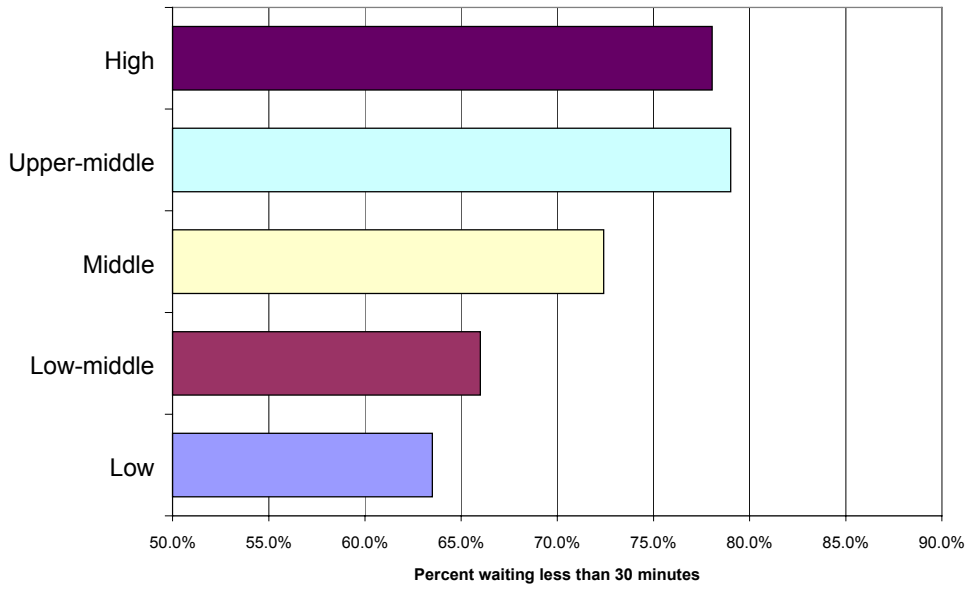
The exit survey did not obtain sufficient information on the care process to permit accurate quality adjustment of utilisation. It did provide information on a number of

indicators, both of service quality and potential barriers to entry. These included waiting times, private payments for care and prescribing practices

Waiting times

The survey found some differences in waiting times between different groups of patients. In the case of the richest quintiles, almost 80 percent were seen within 30 minutes (figure 6). This proportion fell to less than 65 percent for the poorest quintile. No significant difference was found between males and females.

Figure six: proportion waiting less than 30 minutes for consultation, by income quintile



Patient payment for services

Although public services are meant to be free at point of delivery, most patients inevitably incur some cost in obtaining treatment. In the sample, almost everyone had to pay something to get to the facility although in the majority of cases this was between 5 and 10 taka. In addition there are official outpatient and admission ticket charges. In other cases patients must also pay for diagnostic tests, (unofficial) consultation charges to see the doctor and miscellaneous charges to other staff.

In the sample just over 31 percent recorded making payments, other than transport costs which were almost universal, in order to receive care. In addition many patients must also purchase drugs. Although medicines necessary to the provision of ESP care are meant to be provided free of charge, many patients do end up paying for the required medicines themselves. Just over five percent of patients mentioned paying for drugs in addition to those provided free in the facility.

Table three: out of pocket payment for medical treatment (excluding transport charges)

	Patients	Medicines	Per person	Other	per person	Total	per person
Quintile 1	342	9,111	27	6,984	20	16,095	47
Quintile 2	181	2,278	13	2,350	13	4,628	26
Quintile 3	251	2,785	11	1,789	7	4,574	18
Quintile 4	83	652	8	864	10	1,516	18
Quintile 5	126	3,844	31	2,230	18	6,074	48
Total	983	18,670	9	14,217	14	32,887	33
		56.8%		43.2%		100%	

On average, medical treatment cost patients 33 taka, of which 19 taka (57%) was for medicines (table three). The poorest pay almost the same as the richest quintile and in total the poorest 40 percent paid more for treatment than the richest. Given the size of the sample, it would be wise not to read too much into the latter finding. Overall, however, it appears that there is very little difference in payments between quintiles, which in relative terms mean that the poor pay significantly more than the rich for essential primary care services.

It was also found that total payments by men/boys were almost three times those by women/girls (51 compared to 17.5 taka). This might suggest greater willingness to spend money on medical care for males, an observation that is often made in other countries. Alternatively, it may reflect price discrimination by providers for males and females, or higher costs of treatment for males (or more likely a combination of the above).

The size of the payments is important when compared with the total cost of medical care financed by the state. The ESP cost study, referred to earlier (Ferdousi, 2001), found that the cost per patient of providing ESP services was around 48 taka at upazila level. In the present study almost all payments were found to be paid at upazila level, with negligible payments for care provided at field or union level. At upazila level total contributions amounted to about 64 taka per head (table A2.7)[2]. For services that could be classified as ESP the payment was around 41 taka per patient. It is evident, therefore, that patient contributions for service are as great, and perhaps greater, than the government subsidy for service. This is likely to distort the equity objective of channeling better health care towards the most vulnerable.

[2] It is worth mentioning that an exit survey for the cost study mentioned found that patient payments were considerably higher still, around 158 taka per patient, although the sample was much smaller (158 patients) Ferdousi, S. A. (2001) Costing the essential services package, Dhaka, Health Economics Unit & Institute for Economics and Private Sector Development, Research Paper 23.

Medicine prescriptions: ineffective and inappropriate

The issue of medicine prescription entails two aspects:

- Appropriateness of medicines that are prescribed; and
- Effectiveness of the medicine prescription

It is difficult to ascertain the appropriateness of medicine prescriptions from the limited information obtained from the questionnaires. However, the inappropriateness of prevailing prescription practices is indicated by certain information collected through the survey.

It seems that the prescription of drugs is influenced by the availability of the drugs in stock. Reviewing the questionnaires revealed that the patients of a particular facility on a particular day were being prescribed the same few drugs regardless of their medical complaints. During discussions with the FIs, the facility personnel reported that the patients expected to be given free medicine whether they were in stock or not. This expectation on the part of the patients was one reason that the health care personnel handed out whatever drugs were available. Most commonly prescribed drugs handed out from the health facilities were common medicines such as Antacids, Anti-Histamines, Paracetamols, Metronidazole, etc. These drugs were being prescribed to almost all of the patients regardless of the medical complaint they arrived with.

Akin to other developing countries, the practice of prescribing antibiotics is high in the rural areas of Bangladesh. One third of the sample patients received antibiotics for their complaints. "Cotrim" was found to be the most widely prescribed antibiotic. Other frequently prescribed antibiotics include Tetracycline, Amoxycillin and Penicillin. In 1994 Gunyon *et al* found that 25 percent of patients at primary health care level were treated with antibiotics and 17 percent with Metronidazole, irrespective of the diagnosis (Gunyon, 1994). Similarly an HEU Research Note reported that 25 percent of the patients of the 40 Upazila Health Complexes (UHCs) and Union Sub Centers were treated with antibiotics (Kawnine, Killingsworth et al., 1996).

The prescription of medicines becomes ineffective if the prescription does not explain the proper timing and dosage of the prescribed medicines. However, in rural areas where the majority of people are illiterate, written instructions by itself will prove to be ineffective. In addition to written instructions, verbal instructions are necessary for the patients' comprehension. Doctors at health centers usually do not explain either the timing or the appropriate dosage of the required medicine. Nor do doctors provide information regarding the dos and don'ts of a medical problem. For instance, in some cases, such as worm infections, dietary information and knowledge regarding personal hygiene is almost as important as the medicine itself in some cases. However, the pharmacists do explain the time and dosage of the drugs to patients while dispensing the medicine.

Although antibiotics are prescribed frequently, neither the doctor nor the dispenser informs the patients about the required dosage or about the importance of completing the

full course. Furthermore, medicines are usually provided to patients without proper packaging. Sometimes the medicines that are provided to patients are past their expiry date. All these factors combined make the prescription practice ineffectual.

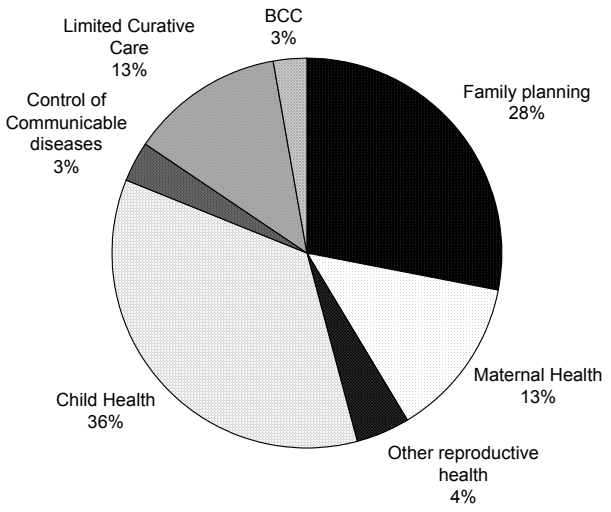
Another important issue relating to prescription is the common practice of obtaining medicines from the facility drugstore without a slip (a sort of prescription issued by the Medical Officer (MO) or Medical Assistant (MA)). The Pharmacist or In-charge of the facility drugstore dispenses medicines without asking any questions. It should be noted that the Pharmacists are not supposed to dispense medicines without such a 'slip'. It was found that these medicines were obtained by patients for family members. These medicines dispensed without a prescription could be inappropriate and potentially dangerous.

Benefits incidence analysis

In order to convert the service use statistics reported in the last sections into benefits incidence it is necessary to combine the figures with calculated per unit expenditures for visits to specific health facility levels, or to receive specific services.

Information from two sources was used to obtain a distribution of spending by ESP category. First, data collected for the 1999-2000 Public Expenditure Review of the Health Sector provides information on the size of development and revenue expenditure used to finance public facilities at upazila level and below (HEU and MAU, 2000). These data also provide dis-aggregation by activity including main ESP components for the development budget. For the revenue budget ESP disaggregation is not available. Instead, the study made use of a recent survey carried out for the HEU by IEPSD (IEPSD, 2000). This obtained estimates on the amount and cost of staff time spent for each component of the ESP. Since staffing costs comprise more than 70 percent of the revenue budget, these estimates, combined with the activity based development accounting, can be used as a basis for deriving expenditure shares for each ESP component at upazila and below.

Figure seven: distribution of revenue and development spending by ESP component (salary spending allocated according to work pattern analysis) – provisional estimates.



Source: MAU and ESP cost survey, HEU & IEPSD, details provided in HEU and MAU, 2000

The expenditure review found that during 1999/2000 a total of TK 1,200 Crore could be directly attributable to service provided under the ESP. In addition, around TK 170 Crore can be allocated to the ESP in super-overhead (apportioned costs of directorate, secretariat and civil surgeon's costs). Of this amount, more than 36 percent is spent on child health, 28% on family planning, 13% on maternal health, 13% on limited curative care and 3% on communicable disease control (figure seven).

Total spending per group can be obtained by allocating the expenditure on each ESP component according to the number of visits by each economic group. Using the BIA methodology, estimates of spending per capita for 1999-2000 are given in table four. Spending is decomposed by income quintile and by sex. Overall it shows that spending per woman/girl is almost three times as high as for men. The main reason for this is that almost all reproductive health services, including the 28 percent of spending on family planning, is obtained by women, even though both men and women benefit.

Table four: Spending per capita by income group and sex, 1999-2000 (Taka)

	Spending per capita/% of spending on group					
	Male		Female		Female (not RH)	
		%		%		%
Quintile 1	92.95	34.90	187.36	27.55	81.54	35.51
Quintile 2	57.53	21.60	106.29	15.63	34.42	14.99
Quintile 3	67.32	25.28	206.87	30.41	72.13	31.41
Quintile 4	17.82	6.69	50.69	7.45	16.82	7.33
Quintile 5	30.72	11.53	128.97	18.96	24.73	10.77
Bangladesh	66.58	100.00	170.05	100.00	57.41	100.00

Better comparability is obtained by examining the figures for women/girls excluding reproductive health care. This comparison indicates that total spending on women/girls is lower in total than for men/boys. The same is true for all quintiles except the third. The gap between men and women appears to be larger for the bottom two quintiles than the top, indicating that gender inequalities may be larger for the poor.

The figures in table four suggest that the current pattern of spending broadly favours lower income groups. Yet the last section demonstrated how the process of obtaining care once in the facility varies markedly with regard to both the amount of time required to wait for service and the user payment for service. The main problem, and a key weakness of most benefits incidence analysis carried out, is that the figures presented fail to take into account quality differences in the process and outcomes of care between the groups. Instead it assumes that once through the door of a facility those with a given disease are treated equally. Yet this appears not to be the case.

Conclusion

The results in this paper are tentative for two reasons. First, the user sample is relatively small and based on exit interviews rather than conventional household survey. While the latter characteristic may actually make the results more reliable than when based on recall, as in a household survey, inevitably the size and coverage of the survey limits its claim to be representative. It will be important to compare this analysis with the results of other surveys, particularly those arising from the 2000/2001 household expenditure survey later in the year.

Second, and perhaps more fundamentally, the process of undertaking the BIA has demonstrated the limitations of analysis when assuming that participation in use of service is necessarily a good proxy for ultimate benefits in terms of services obtained and health status improved. Data collected during the survey suggest that the process may be both inequitable and inefficient. Inequitable because the poor appear to wait longer and pay more for service. Inefficient because this, and many other studies, suggests that scarce medicines financed by both government and by patients are often distributed indiscriminately and without proper attention paid to their correct use. Indirectly this inefficiency will also have a bearing on equity since improper use of budget financed medical supplies imply their non-availability for those in most need. This is a good example of it being both ethical and equitable to be efficient in the use of scarce budget resources.

The study points to the need for more detailed analysis. General surveys of this nature cannot properly describe the complex process and barriers to access incurred by a patient in obtaining quality health service. Further analysis should concentrate on the process of care seeking for specific diseases, particularly by the most vulnerable in society.

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Annex one: exit survey questionnaire - exit interviews

1. Introduction

1.1 Name of Interviewer _____

1.2 Date of Interview

d	d	m	m	y	y

1.3 Name of Facility

1.4 Address of Facility

1.5 Level of Facility

Family Welfare Centre (FWC)	1
Rural Dispensary (RD)/ Union Sub-Centre (USC)	2
Union Health and Family Welfare Clinic (UHFWC)	3
Thana Health Complex (THC)	4
Other (specify)	5

_____

2. Household profile

If the patient is a child questions should be answered by an accompanying adult on behalf of the child.

2.1 Gender of respondent	Male Female	1 2
2.2 Age of patient		
2.3 What is the highest level of education attained by the patient?	Illiterate Literate but no formal schooling Upto grade 5 Upto grade 8 Upto SSC SSC Completed HSC Bachelors & above	1 2 3 4 5 6 7 8
2.4 How many people currently live in your household? Please include all family members who share food from same cooling in your home. Also include any other friends or relatives who share your dwelling and live as part of your family.		
2.5 How many of the household members are women or girls?		
2.6 How many of the household members are under 5?		
2.7 Is the patient the head of household?	Yes No	1 2 ..Go to Q3.1
2.8 What is the gender of the head of household?	Male Female	1 2
2.9 What is the highest level of education attained by the head of household?	Illiterate Literate but no formal schooling Upto grade 5 Upto grade 8 Upto SSC SSC Completed HSC Bachelors & above	1 2 3 4 5 6 7 8

3. Employment

		First	Second	Third	Forth
3.1 What are the main occupations of those employed in the household? [answer one only]	Government employee	1	1	1	1
	Employee of a private organisation or NGO	2	2	2	2
	Farmer	3	3	3	3
	Farm labourer	4	4	4	4
	Owner or manager of small business (e.g. shop,)	5	5	5	5
	Day labourer	6	6	6	6
	Houseworker (Housewife)	7	7	7	7
	Student	8	8	8	8
	Unemployed	9	9	9	9
	Retired	10	10	10	10
	Other (please specify) _____	11	11	11	11

3.2 What other income generating activities is the household involved in? (needs aligning?) [More than one answer is permitted]	Small business	1
	Shopowner	2
	Teacher	3
	Day Labourer	4
	Selling vegetables and other foods	5
	Fishing	6
	Handicrafts	7
	Tailor	8
	Home based production worker	9
	Others (please specify)	10
	1_____	
	2_____	
	3_____	

4. Lifestyles and assets

4.1 What is your main source of drinking water?	Tap water	1
	Rain water	2
	Tubewell/pump well	3
	Lake/pond/river	4
	Well	5
	Others	6
4.2 What fuel do you usually use to cook food?	Wood	1
	Gas	2
	Electricity	3
	Others (specify) _____	4

4.3 Which of the following items does your household own?
(please tick in yes or no box)

	Quantity
Quilt	
Boat	
Bicycle	
Motorcycle	
More than one item of gold jewellery	
Fan	
Colour television	
Radio/ Cassette Player	
Watch/clock	
Spare tin (not used for roof)	
Sheep/goat	
Cow	

4.4 Do you own your own house?	Yes	1	
	No	2	
4.5 What type of roof does your dwelling have?	Concrete/tiles	1	
	Metal	2	
	Wood	3	
	Straw/thatch	4	
	Other	5	
4.6 How many rooms does your dwelling have?	One room	1	
	Two rooms	2	
	Three	3	
	Four	4	
	Five or more	5	
4.7 Do you own any land?	Yes	1	
	No	2	Go to Q5.1
4.8 How much land do you own?	Less than 0.5 Bhigha	1	
	0.5 – 1 Bigha	2	
	1 – 5 Bigha	3	
	5 – 10 Bigha	4	
	More than 10 Bigha	5	

5. Household expenditure

I would now like to ask you a few questions about your household income. You answer these questions for a typical month or a typical week.

For each question specify the amount in Taka for a typical month.

5.1 On average how much does your household earn from all regular employment? Please try to think of a typical time during the year.	Less than 200 200 – 500 500 to 1000 1000 to 2000 2000 – 4000 4000 – 6000 6000 – 10000 More than 10000	1 2 3 4 5 6 7 8
5.2 On average how much does your household earn from renting land or property?	Less than 200 200 – 500 500 to 1000 1000 to 2000 2000 – 4000 4000 – 6000 6000 – 10000 More than 10000	1 2 3 4 5 6 7 8
5.3 On average how much does your household earn from other income generating activities (e.g. handicrafts, home-working)?	Less than 200 200 – 500 500 to 1000 1000 to 2000 2000 – 4000 4000 – 6000 6000 – 10000 More than 10000	1 2 3 4 5 6 7 8

6. Distance to health facilities (exit version)

6.1 How far have you come today in order to receive treatment?	Less than 1 km	1
	1 – 2 km	2
	2 – 5 km	3
	5 – 10 km	4
	More than 10 km	5
6.2 How long does it take to travel from your place of residence to this facility?	Less than 10 minutes	1
	10 – 30 minutes	2
	30 minutes to 1 hour	3
	1 –2 hours	4
	More than 2 hours	5
6.3 How much did you have to pay in order to get to the facility?	less than 5 Taka	1
	5 –10 Taka	2
	10 – 50 Taka	3
	50 – 100 Taka	4
	More than 100 Taka	5

7. Experience of illness and treatment (Exit survey)

7.1 What was the reason for visiting the health facility?

Immunisation	1	} Go to Q7.3
Ante-natal or post-natal care	2	
Family planning advice or supplies	3	
Other reproductive health advice	4	
Child health check	5	
Suspected Malaria	6	
Confirmed Malaria	7	
Other fever	8	
Respiratory infection	9	
Servere stomach pain	10	
Other communicable diseases	11	
Skin problem	12	
Suspected Tuberculosis	13	
Confirmed Tuberculosis	14	
Leprosy	15	
Diarrhoea	16	
Assault	17	
Accident (trauma)	18	
Other (please specify)	19	

_____

7.2 What did the health provider say was wrong with you?	Nothing was wrong	1
	Minor illness that needed no treatment	2
(more than one may be answered)	Said the pain or illness was related to pregnancy	3
	Suspected TB	4
	Confirmed TB	5
	Suspected Malaria	6
	Confirmed Malaria	7
	Injury requiring bandage, stitches or plaster	8
	Ulcer	9
	Other (please specify)	10
	_____	
7.3 What did the health provider do for you?	Physical examination	1
	Provide contraceptives	2
(more than one answer possible)	Give some advice	3
	Blood test	4
	X-ray	5
	Urine/ Stool test	6
	Immunisation	7
	Operation	8
	Other (please specify)	9
	_____	
	Nothing	10
7.4 What treatment did the health provider say you needed? (more than one answer possible)		
Note to the Field Investigator: Please write down the medicines prescribed.	Medicine – antibiotics	1
	Other medicine	2
	Further diagnostic tests	3
	Hospitalisation	4
	Operation	5
	Referred to another physician	6
	Nothing	7
	Other (please specify)	8
	_____	

8. Process of treatment

8.1 How long did you spend waiting for treatment?	less than 30 minutes	1	
	30 – 59 minutes	2	
	1 – 2 hours	3	
	2 – 4 hours	4	
	more than 4 hours	5	
8.2 Were you kept over night at this facility for treatment?	Yes	1	
	No	2	Go to Q9
8.3 How many nights did you spend at this facility?	1 night	1	
	2 night	2	
	3 – 5 night	3	
	6 – 10 night	4	
	more than 10 night	5	
8.4 Do you think you need to receive more treatment for your illness from another facility?	Yes	1	Go to Q9.1
	No	2	
8.5 Which facility do you think you will need to go to?	Pharmacy	1	
	Private clinic or private doctor	2	
	NGO Health Center	3	
	Union FWC	4	
	Thana Health Complex	5	
	District hospital	6	
	Other (Specify)	7	

9. Payment for treatment

9.1 Did you bring any items with you to the health facility for treatment such as drugs or medical supplies?	Yes	1	
	No	2	Go to Q9.3
9.2 What items did you bring?	Drugs	1	
	Bandages	2	
	Syringes	3	
	Blood	4	
	Other (specify)	5	
9. 3 Have you been requested to obtain any items in order to complete your treatment?	Yes	1	
	No	2	Go to Q9.5

9.4 What items must you obtain?	Drugs	1	
	Bandages	2	
	Syringes	3	
	Other (Specify)	4	
	_____		
9.5 Did you have to make any payment for the treatment you have received?	Yes	1	
	No	2	Go to END
9.6 How much did you have to pay?	Less than 10 Taka	1	
	10 – 20 Taka	2	
	20 – 50 Taka	3	
	50 – 100 Taka	4	
	100 – 500 Taka	5	
	More than 500 Taka	6	
9.7 If you had not made this payment what do you think would have happened?	No treatment	1	
	Slow treatment	2	
	Bad quality treatment	3	
	Bad quality drugs	4	
	No drugs provided	5	
	Other (specify)	6	
	_____		

END OF QUESTIONNAIRE

That is the end of the questions. Thank you very much for your help the and time you have given. Let me assure you that everything you have said will be treated in the strictest confidence. The answers will be very useful in helping to develop better health services.

Thank you once again.

Annex two: exit survey tables

A2.1: Age-sex structure of the sample

	Male	Female	
Under 1	35	24	59
2 - 5 years	53	45	98
5 - 9 years	33	28	61
10 - 14 years	19	17	36
15 - 19 years	41	42	83
20 to 49 years	166	330	496
50 - 60 years	62	41	103
Over 65	46	9	55
	455	536	991

Table A2.2: education of head of household

	Gender of the head of the household					
	Male	%	Female	%	Total	%
Illiterate	304	44.25	22	53.66	326	44.78
Literate but no formal schooling	48	6.99	0	-	48	6.59
Up to Grade 5	86	12.52	6	14.63	92	12.64
Completed Grade 5	37	5.39	4	9.76	41	5.63
Up to Grade 8	74	10.77	2	4.88	76	10.44
Up to SSC	47	6.84	1	2.44	48	6.59
SSC Completed	50	7.28	3	7.32	53	7.28
HSC	28	4.08	2	4.88	30	4.12
Bachelors & above	13	1.89	1	2.44	14	1.92
Total	687	100.00	41	100.00	728	100.00

Table A2.3: service utilization by income decile (all upazila and below facilities)

	Male		Female		Total	
Decile	Count	Col %	Count	Col %		Col %
1	85	18.72247	110	20.48417	195	19.67709
2	67	14.75771	80	14.89758	147	14.8335
3	56	12.3348	61	11.3594	117	11.80626
4	31	6.828194	33	6.145251	64	6.458123
5	46	10.13216	58	10.80074	104	10.49445
6	67	14.75771	80	14.89758	147	14.8335
7	1	0.220264	4	0.744879	5	0.504541
8	34	7.488987	42	7.821229	76	7.669021
9	31	6.828194	41	7.635009	72	7.265388
10	36	7.929515	28	5.214153	64	6.458123
	454	100	537	100	991	100

A2.4: service use by ESP category

	Men	Women	Total	
Reproductive health - family planning		23	23	2.3%
Repoductive health - maternal health		26	26	2.6%
Reproductive health - other RH		27	27	2.7%
Control of Communicable Diseases	19	11	30	3.0%
Child Health (under 5)	88	69	157	15.8%
Limited Curative Care	208	214	422	42.6%
Symptoms only-medicines prescribed	126	153	279	28.2%
Symptoms only - medicines not prescribed	1	4	5	0.5%
Nothing wrong		2	2	0.2%
Further tests/hospitalisation required	12	8	20	2.0%
Total	454	537	991	100.0%
Including Reproductive health	45.8%	54.2%		
Non-reproductive health	49.6%	50.4%	915	

A2.5: use of services by facility level and gender

	Gender		
Facility	Male	Female	Total
FWC	21	77	98
RD/USC	112	93	205
UHFWC	58	131	189
UHC	243	225	468
50 Bed Hospital	21	10	31
Total	455	536	991

A2.6: use of services by facility level and income quintile

	1	2	3	4	5	Total
FWC	31	13	26	19	9	98
RD/USC	84	39	43	22	17	205
UHFWC	51	24	61	29	24	189
UHC	163	73	94	70	68	468
50 bed-hospital	13	1	8	3	6	31
Total	342	150	232	143	124	991
Percent use						
FWC	*9.1%*	*8.7%*	*11.2%*	*13.3%*	*7.3%*	*9.9%*
RD/USC	*24.6%*	*26.0%*	*18.5%*	*15.4%*	*13.7%*	*20.7%*
UHFWC	*14.9%*	*16.0%*	*26.3%*	*20.3%*	*19.4%*	*19.1%*
UHC	*47.7%*	*48.7%*	*40.5%*	*49.0%*	*54.8%*	*47.2%*
50 bed-hospital	*3.8%*	*0.7%*	*3.4%*	*2.1%*	*4.8%*	*3.1%*
	100.0%	*100.0%*	*100.0%*	*100.0%*	*100.0%*	*100.0%*

A2.7: total user payments for services and average per patient

Facility	Official Charges	Doctors' fee	Drugs & Supplies	Surgery	Diagnostic tests	Other	Total costs	Average payment
FWC	0.03	0.00	0.00	0.00	0.00	0.15	0.18	0.18
RD/USC	0.18	1.07	5.09	0.00	0.00	0.96	7.37	7.37
UHFWC	0.08	1.27	1.16	0.00	0.00	1.23	3.64	3.64
UHC	0.84	4.22	37.19	0.63	1.90	20.60	64.86	64.86
50 Bed Hospital	1.84	0.00	0.00	0.00	0.00	0.26	2.10	2.10