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UNDERSTANDING CLIENT PREFERENCES TO GUIDE THE PRIORITIZATION OF INTERVENTIONS FOR INCREASING DEMAND AT NGO HEALTH SERVICE DELIVERY PROJECT (NHSDP) CLINICS IN BANGLADESH

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ACRONYMS

ANC	Antenatal Care
CBC	Choice Based Conjoint
CS	Caesarian Section
BDT	Bangladeshi Taka
DCE	Discrete Choice Experiment
HB	Hierarchical Bayes
JPGSPH	James P. Grant School of Public Health
MBBS	*Medicinae Baccalaureus, Baccalaureus Chirurgiae* - Board certified doctors
NGO	Non-governmental Organization
NHSDP	NGO Health Service Delivery Project
PNC	Postnatal Care
POP	Poorest of the Poor
SES	Socio-economic Status
SSC	Smiling Sun Clinic
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

Background

This study describes the results of the discrete choice experiment (DCE) undertaken at the request of the United States Agency for International Development (USAID) Bangladesh, to quantitatively assess the factors influencing the demand for maternal and child health care in the catchment population of USAID's NGO Health Service Delivery Project (NHSDP)-supported network of Smiling Sun facilities with a view to prioritizing interventions that would have the highest impact in increasing the demand for services from Smiling Sun facilities.

Methods

Preference data were collected from 600 households from urban and peri-urban populations within the catchment area of Smiling Sun facilities. Utilities[1] were estimated for the following attributes: provider attitude, provider type, comprehensiveness of maternal health care, comprehensiveness of child health care, price, drug availability, cleanliness of facility environments, availability of diagnostic services, accountability, and waiting times. These attributes were determined after a literature review, expert interviews, and focus group discussions.

Results

For maternal health care, the availability of brand name drugs, the comprehensiveness of delivery services (specifically including C-section services), and polite provider attitudes were the attributes for which households expressed the highest preferences. For child health care, the most important preferences were for the availability of brand drugs, polite providers, clean facility environments, available phone lines for making complaints to hold providers accountable, and the availability of diagnostic services.

It was noted that these households did not express a strong preference for free services. In addition, while doctors were preferred to nurses and paramedics, the importance of provider attitude was made clear by the finding that politeness (regardless of who was being polite) has stronger preference levels; i.e., a polite paramedic was preferred over a rude doctor. Finally, it was noted that this population expressed higher preferences for brand drugs such that they did not appear to differentiate, preference-wise, between facilities that had non-brand drugs and facilities that had inconsistent or non-availability of drugs.

The analysis was also broken out by three socio-economic strata (SES) that are defined and used by the Smiling Sun NGO clinics: non-poor, poor, and poorest of the poor (POP). Findings across these three groups were similar in terms of attribute utilities and rankings. The only significant difference found was that the POP expressed stronger preferences for the availability of brand drugs as compared to the poor or non-poor. All three groups expressed strong preferences and similar importance rankings for comprehensive maternal care availability, a lack of preference for free services, and a strong preference for polite providers. However, it is important to note that the population surveyed was peri-urban and urban so it may not be appropriate to generalize these findings to rural-Bangladesh populations for whom price may be a more important attribute.

[1] "Utility" can be defined as the (perceived) ability of something to satisfy needs or wants.

On a methodological note, although the DCE approach may appear to be complex and place a high cognitive burden on survey respondents, the results from this study strongly support the conclusion that, even in populations with varying literacy levels, a DCE survey using pictorial representations of health facility characteristics can be successfully utilized.

To summarize, the main findings were:

- The availability of brand drugs is an important factor in determining which facilities are utilized in this population – more so than any other attribute explored in the study for child health services.
- Provider attitude is also a key determinant of health facility choice and facilities would benefit from further exploration to define specifically how they can improve this client population's perception of their providers' attitude.
- This population, though generally poor, does not have a strong preference for free services (over moderately priced services).
- Although this population expressed (as expected) strong preferences for a continuum of care that includes effective referral services, higher preference scores for provider attitudes and the availability of brand drugs were observed, suggesting that these should be considered for prioritization.

Recommendations

- **Brand drugs pricing/advertising:** This client population expressed a very strong preference for branded drugs at a time when NHSDP is securing competitive pricing for branded drug procurement from drug manufacturers for sale in NHSDP facilities. This presents an opportunity for an intervention that increases the client population's knowledge regarding the availability of brand drugs. It is suggested that more work be conducted around pricing and then messaging about these drugs to 'capture' a proportion of the clients currently going straight to informal providers for curative child health services.
- **Antenatal care/immunization link to child health:** The antenatal and immunization services of the Smiling Sun facilities are well known to this population. Currently, this knowledge doesn't translate into child health service usage, which is an important missed opportunity for NHSDP.
- **Provider attitude:** NGOs need to have a more nuanced understanding of what constitutes 'positive provider' attitude beyond the 'rude/polite' definition used in this study. A deeper understanding of what clients want would provide valuable insight into how to leverage existing NHSDP initiatives, particularly those that use mobile phones, such as One Call. Such initiatives could be expanded to good effect if contact, even by phone, is understood to be positive by clients and incentivizes them to return to the clinic. This is particularly important for child services, even for babies delivered elsewhere after their mothers receive antenatal care and their babies receive immunizations at Smiling Sun facilities.
- **Pricing:** Fortunately, the fee schedule is being discussed for revision; the schedule used since May 2014 does not appear to allow for sufficient cost recovery for NGOs. More detailed costing may be required to strike a balance between what fees are sustainable vs. dis-incentivizing utilization. Possibly closer coordination with providers is necessary as some providers may be in locations with particularly high numbers of clients qualifying for subsidized services, which will prove difficult for achieving financial sustainability and unnecessary if patients are actually going elsewhere such as informal providers and paying for services.

- **SES classification:** The results from the focus groups and the DCE survey do not show that free services are highly desirable among the urban and peri-urban population. However, it is important to note that if the urban/peri-urban population differs greatly from a rural population, it may not be appropriate to generalize this finding of no preference for free service to the rural population. Similarly, it may be correct to say that POP in urban/peri-urban populations are not the same as POP in rural populations; meaning that although they are both called POP, they many not both require free services

1. BACKGROUND AND RATIONALE

This section describes the context in which the study was carried out, the aims and specific objectives of the study, as well as the rationale for the approach used.

1.1 Study context

The NGO Health Service Delivery Project (NHSDP), funded by the United States Agency for International Development (USAID) and the U.K. Department for International Development, supports the delivery of primary health care through a nationwide network called Surjer Hashi, or "Smiling Sun." NHSDP's goals are:

- Increased access and use of essential primary health care services;
- Improved healthy behaviors and care seeking practices; and
- Enhanced ownership of service delivery by partner NGOs.

The network consists of 26 local NGOs, 327 static clinics, 8,838 satellite clinics, and 6,320 community service providers. NHSDP serves approximately 20 million people (13 percent of the population) through this network. The essential service package of quality care delivered is described in Table 1 below.

Table 1: NHSDP Essential Care Package

Reproductive health	Safe motherhood, family planning, maternal nutrition, youth-friendly services, prevention of sexually transmitted infections, infertility prevention and treatment, and neonatal care
Child health	Immunization, nutrition, treatment for acute respiratory infection, and integrated management of childhood illness
Behavior change communication	Messaging around maternal and child health care services
Communicable disease control	Tuberculosis, malaria, and HIV and AIDS
Limited curative care	Treatment of common cold, fever, pain relief, eye care, accidents, injuries, and primary care of non-communicable diseases

The Smiling Sun franchise has experienced a decline in market share in recent years and therefore the project is designing and piloting interventions that can be implemented at the clinic level by its partner NGOs to reverse this trend.

1.2 Study aims

This study provides qualitative and quantitative evidence on patient preferences that NHSDP can use to:

1. Support decision-making on the design of interventions that will impact patient utilization of Smiling Sun clinics; and
2. Assist in determining which interventions will likely have the most impact on patient utilization and therefore should be prioritized.

USAID Bangladesh asked the Health Finance and Governance Project (HFG) to support NHSDP with research that would identify and quantify patient preferences to guide the design of interventions that could increase patient utilization of some clinics and to support decision-making on the prioritization of the interventions.

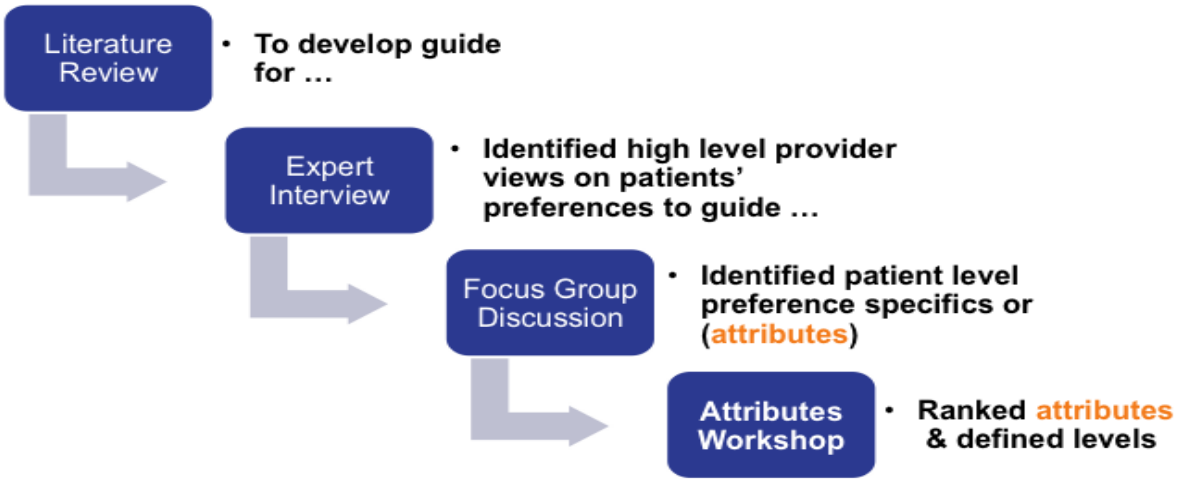
HFG in collaboration with the James P. Grant School of Public Health (BRAC and the International Centre for Diarrhoeal Disease Research, Bangladesh staff) designed and carried out a discrete choice experiment (DCE) using specially designed surveys that were administered to households within the catchment population of four Smiling Sun facilities in and around Dhaka.

1.3 Study approach

Assuming that specific interventions can affect the characteristics (such as provider type or availability of drugs) of Smiling Sun health facilities, then determining which interventions should be implemented requires us to understand more about how households decide which health facilities to visit and which characteristics of those health facilities play a role in households' choices.

The study team undertook several qualitative research steps in order to develop a list of health facility characteristics that are most likely to impact household choices that could be further explored in a quantitative DCE survey (see Figure 1).

Figure 1: Qualitative Determination of Health Facility Characteristics



1.4 Literature review

A literature review was carried out to determine the commonly studied characteristics or attributes of health facilities that impact household decision-making in order to determine a draft list of characteristics that could be presented to experts. In addition, the literature review explored instances where the DCE methodology had been used in health services research specifically to quantitatively understand patient preferences.

As a result of the literature review, the following categories of issues were further explored in expert interviews and focus group discussions:

- Quality – in terms of drug availability, cleanliness of the facility environment, the availability of complementary services, waiting times, and adherence to service delivery protocols.
- Patient provider relationships – in terms of provider gender, provider attitude, and familiarity with retained providers.
- Accountability – in terms of patients being able to report instances of maltreatment, and in terms of communities being able to monitor health facilities.
- Affordability – in terms of patients being able to access free OR affordable care.
- Referrals – in terms of referrals being non-assisted or assisted (for example, with transportation services).

With regard to methodology, the DCE approach has been used successfully in Zambia[2] and rural Tanzania[3] to explore patient preferences, which suggested that the methodology could also be implemented in Bangladesh in populations with varying levels of literacy. In Zambia, patient preferences were obtained in order to determine the willingness of patients to pay higher fees for better specific amenities such private rooms or meals, across different socio-economic strata (SES) and found that neither the poorest nor the wealthiest patients in their study populations were willing to do so. In Tanzania, patient preferences regarding the use of facilities for delivery were studied and the results suggested that respectful provider attitude and drug availability were more important to the study population households than characteristics such as cleanliness, distance, and cost.

1.5 Expert interviews

Based on the literature review, expert interview guidelines were developed and used. Experts raised specific issues that they felt were likely to influence patient preferences. Financing, accountability, and quality were common themes with experts from academia, government institutions, and program implementers. Financing was raised as an issue because experts tended to focus on the fact that paying for services is an important barrier to accessing care and Bangladesh is exploring the use of vouchers, pay-for-performance, and prepayment schemes to address issues of financial barriers to accessing health care. Accountability, in particular community involvement, in the running of health facilities was also perceived to be an important issue. Other issues that were raised by experts included referral systems and availability and distribution of human resources for health.

2 Hanson et al., *Preferences for hospital quality in Zambia* : results from a discrete choice experiment, Health Economics 14 : 687-701 (2005)
3 Kruk et al., *Women's preferences for place of delivery in rural Tanzania : a population-based discrete choice experiment*, American Journal of Public Health, September 2009, Vol 99, No.9 (2009)

1.6 Focus group discussions

Four focus group discussions were held based on findings from the literature review and expert interviews in order to obtain information from potential survey respondents to validate the characteristics identified up to this point in the study and to clarify any issues around wording to ensure that subsequent surveys employed wording that is clear and familiar to potential survey respondents. Health service promotors from four non-sampled NHSDP clinic populations organized these groups. Focus group discussion guidelines were developed and used to cover the following topics: health seeking behavior, perceptions of quality, health facilities, and services particularly around maternal and child health, challenges households face when in need of care, and perceptions of health facilities and paying for care.

In general, regarding:

- **Facility choice:** Focus groups participants said that they chose facilities according to their health needs and not just in terms of distance and perceived health facility characteristics.
- **Paying for services:** Respondents also said that they were satisfied with private or NGO clinics where they had to pay out of pocket and tended to prefer them to public facilities. Although the price of services is an issue, respondents also care about quality.
- **Definition of 'quality':** Respondents also considered a broad range of health facility characteristics when they were asked how they thought of quality, including: immediate service, availability of doctors/nurses, drugs, diagnostic services, consistent attention and monitoring by staff during the time that they are in the facility, polite attitude of staff, opening hours, and the availability of referral or emergency services for children.
- **View of public facilities:** Respondents generally agreed that the poorest sought care at public facilities because it is free but the quality is better at non-public facilities, which are preferred if payment can be made.

1.7 Discrete choice experiments

Conjoint analysis is a quantitative method used to obtain individuals' stated preferences for goods or services. It allows for the estimation of the contribution of different attributes of those goods or services to the individual's choices or preferences. The DCE approach used in this study is a form of conjoint analysis called a "choice-based conjoint," or CBC, in which each respondent is presented with a choice of competing scenarios, where each scenario is characterized by several attributes, and the respondent is asked to select his/her preferred scenario. These data (the choices made by individuals) are then analyzed using statistical techniques such as Hierarchical Bayes (HB), logit, or conditional logit regression analyses to obtain attribute utilities at the level of the individual.

To illustrate:

1. When an individual buys a shirt, a choice has to be made between different brands, colors, prices, fabrics, and so forth. These different characteristics of the shirt are referred to as *attributes*.
2. For each of these attributes, there are different options, for example, the color might be red, blue, or green, the fabric cotton or silk, and so forth. These options are referred to as *attribute levels*.
3. People buy a shirt based on some combination of attributes/levels that they prefer, in other words, based on their preferences.
4. A DCE is a way to learn about preferences by asking an individual to make a series of choices between different combinations in a survey and then quantitatively determining which attribute levels are chosen more often, adjusting for the presence of other attributes.

In the context of this study, this approach was chosen to quantify the relative importance of a specific list of attributes that was developed through a literature review, expert interviews, focus group discussions, and attributes workshop. Each of these steps is discussed below.

1.8 Attributes workshop – converting findings into 'attributes' and 'attribute levels'

In the DCE methodology, health facility characteristics are referred to as attributes and the specific dimensions of those characteristics/attributes are referred to as attribute levels. For example, 'provider type' is an attribute of a health facility and examples of attribute levels of 'provider type' could be paramedic, nurse, or doctor. As a result of findings from the literature review, expert interviews, and focus group discussions, a list of potential health facility attributes was drawn up for review and prioritization by NHSDP staff and NHSDP NGO clinic managers and service promoters at a workshop held in May 2014. The study approach and findings to date were presented, and then participants were asked to:

1. Review and rank the draft list of attributes presented by the study team in order to prioritize them;
2. Finalize the attribute levels that would be used in the survey; and
3. Refine the pictorial guide that would be used to represent attributes and attribute levels in the DCE survey.

The final ranked set of attributes is shown in Table 2. Two DCE surveys were used, one for maternal services and one for child services. All the attributes were included in each survey except for continuum of care and price. Maternal continuum of care was used for the maternal survey and child continuum of care for the child survey. Prices (taken from the NHSDP fee schedule, as of May 2014) related to delivery services were used for the maternal survey and prices related to a child visit were used for the child survey.

Table 2: Final Ranking of Attributes and Attribute Levels from Workshop Used in the DCE Design

Attribute	Attribute Levels
Provider Attitude	Rude Polite
Provider Type	Paramedic Nurse Female Doctor Male Doctor
Continuum of Maternal Care	Delivery service not available Normal delivery service (ANC and PNC) Normal delivery service (ANC, PNC, and Referral) Normal delivery service (ANC, PNC, and ambulance services for referral) C-section delivery services (ANC, PNC, and normal delivery)
Continuum of Child Care	Availability of child health services Availability of child health services with ambulance referral
Price (maternal delivery)	No fee 600 Taka* 800 Taka
Price (child visit)	No fee 15 Taka 30 Taka 60 Taka
Drug availability	Brand drugs available

Attribute	Attribute Levels
	Non-brand drugs available Uncertain availability drugs or no drugs
Environment	Not clean Clean
Diagnostic Service	Available Not Available
Accountability	No option available for making complaints Access to comment box Identified person to complain to Available phone line for making complaints
Waiting Times	Less than 1 hour Between 1 and 2 hours More than 2 hours

Note: ANC=antenatal care; PNC=postnatal care

* Bangladeshi Taka 76.00 = US$1.00 (January 2015)

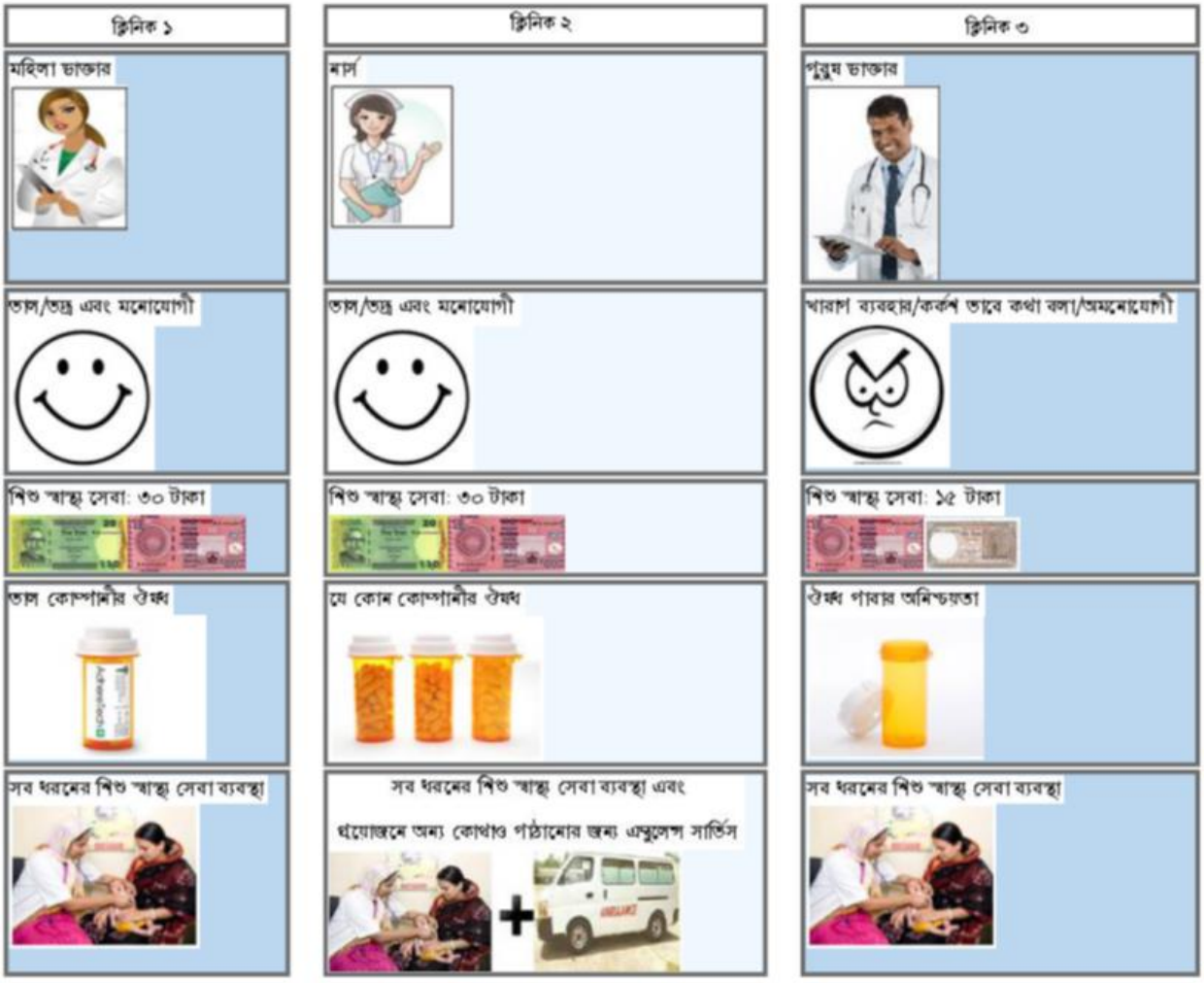
Attributes were described to interview respondents using a pictorial guide (see Annex A).

1.9 Survey design, and sampling and administration

Two surveys were designed for this study, the first being a standard household survey to obtain household characteristics and health seeking behavior for maternal and child health services. The second survey was the DCE tool. This survey was designed using Sawtooth Software,[4] a widely used conjoint analysis software. The software also designed the experiment such that sample size and the number of attribute levels per attribute are accounted for in the choice set design. The software produces a series of randomly generated choice sets or scenarios where each attribute level has an equal chance of appearing in each choice set. In this case, 12 different versions of the DCE were designed, each having nine questions. Figure 2 shows an example of a single question presenting three scenarios. Each scenario represents a health facility with five attributes that are described below pictorially and with text. In Figure 2, scenario one represents a health facility with (from top to bottom) a female doctor, with providers who are polite, the price of a visit is 30 Taka, brand name drugs are available, and no referral services with ambulance is available. The respondent is then asked to review the scenarios and choose the one that represents the facility they would choose. Not shown here but included in the actual survey is a fourth option with no attributes, listed marked "none," which the respondent could choose if they felt that they would not choose any of the three scenarios.

[4] www.sawtoothsoftware.com

Figure 2: An example of a single DCE question showing three different health facility scenarios, each made up of five attributes: provider type, provider attitude, price, drug availability, comprehensiveness of health facility child health services



Finally the pen and paper survey results are entered into the software for data analysis.

The two tools were pre-tested in 10 households prior to wider survey administration to ensure that data collectors understood how to administer the survey and to ensure that the pictorial guide that accompanied the DCE survey was clear and understandable (in addition to the DCE survey itself). Only minor wording modifications were required for the tool. However, respondents appeared to struggle with having eight attributes per scenario, so the attributes for facility environment, accountability, and waiting times, were 'cycled' through so that only one was presented in each scenario, meaning that respondents only had to consider five attributes at a time. The experiment design was re-tested using the Sawtooth Software to ensure that the sample size and number of questionnaire versions would adequately accommodate the cycling process. Following the pre-test, data collector training was conducted and then a pilot was conducted so that the household identification process, and data entry, cleaning, and coding processes could be tested and finalized. Data from the pilot were then cleaned and analyzed in Stata 12.

Data collection was carried out over June–July 2014. The study team worked with NHSDP to identify a purposive sample that would cover households in the catchment population of Smiling Sun facilities in urban and peri-urban areas (see Table 3) within a three-hour driving distance of Dhaka (see Annex B for population catchment area maps). In addition, the sample was selected in order to cover both types of Smiling Sun facilities, vital, which provide a basic level of care, and ultra-clinics, which provide comprehensive care including deliveries. The number of households visited in each population catchment area was determined by the number of eligible couples on the eligible couples list of the catchment area's NHSDP facility. The total sample size was 300 households for the maternal health DCE survey and 300 households for the child health DCE survey. The experiment design was tested in the Sawtooth Software to ensure that the sample size of households was adequate given the number of attributes and attribute levels being explored. Each DCE survey consisted of nine choice set questions. Each household completed one survey (of nine different choice set questions) for either for maternal health or for child health. Ten different survey versions with difference choice set combinations were generated for maternal health and another 10 for child health, so that each household randomly received one of 20 possible surveys. Data collectors were given a set of surveys but there was no *a priori* assignment of child or maternal services surveys; a household was equally like to receive any one of 10 maternal or 10 child health services DCE survey.

Table 3: Study sample facility catchment population areas and sample size

Area	Clinic Name	Clinic Type*	Eligible List Size	Sample Size
Urban	Smiling Sun Clinic, Gazipur	Ultra	35000	260
	Smiling Sun Clinic, Tejgaon	Vital	25800	192
Peri-urban	Smiling Sun Clinic, Harirampur	Ultra	6398	48
	Smiling Sun Clinic, Keraniganj	Vital	13393	100

* Ultra clinics provide comprehensive care including delivery services; vital clinics provide basic care and do not provide delivery services

Upon entering a household, the surveyor asked to speak with the mother of the children in the household, who was asked to provide informed consent. The surveys were administered only in households where a woman had delivered within the previous two years and had at least one child under five years of age.

The study protocol, discussion guides, and survey tools received ethical approval for human subjects research from the Institutional Review Boards of Abt Associates and BRAC University where the James P. Grant School of Public Health is based.

2. DATA ANALYSIS METHODS

This section describes the data analysis methods used to obtain the descriptive statistics of the population of respondents in the final dataset and the methods used to estimate the attribute utilities, which are the main results of the study.

2.1 Descriptive characteristics

Descriptive statistics of the final dataset were estimated in Stata 12.[5] Means and proportions were estimated to describe the sample population in terms of age, gender, SES, and education status as well as the health seeking behaviors and knowledge around the Smiling Sun facilities and services.

2.2 DCE validity checks

As previously mentioned, each respondent was asked to answer a total of nine DCE choice set questions. Eight of these questions had responses that were used in the final dataset for analysis. One of the questions, however, was a 'fixed' choice question meaning that the attributes in each of the three scenarios presented in the question were identical across all surveys rather than being a random combination of attribute levels. The question was fixed such that one of the options was a health facility made up of all the attributes that could be deemed most desirable *a priori*. In this experiment, the first health facility scenario had a female doctor, providers with a polite attitude, a price of zero Taka, brand name drugs available, and a comprehensive range continuum of care from ANC up to Caesarian section delivery availability (or referral with ambulance for child care in the child health surveys). The logic behind this fixed choice question is that every rational respondent should pick this option and observations where this is not the case could be identified and counted. This way, the experiment tool or process can be redesigned if a high (<10 percent) proportion of respondents appear irrational, or abandoned due to a lack of validity.

2.3 DCE count analysis

'Counts' provides a quick calculation of the main effects and joint effects for the collected attribute levels. It calculates a proportion of "wins" for each level, based on how many times a concept (a health facility scenario such as one of those shown in Figure 2) including that level is chosen, divided by the number of times a concept including that level appeared in the choice task. The results of the count data allow us to determine which attribute level is the most popular, having been chosen the most times that it occurs in percentage terms. For example, female doctors were chosen 34 percent of the time for scenarios in which "female doctor" was the attribute level shown for the provider type attribute, This can be compared to scenarios where a "male doctor" or "nurse" was the attribute level and respondents chose these scenarios only 29 percent and 22 percent of the time, respectively, suggesting these providers are less popular than female doctors.

Count analysis results are of limited use in prioritizing interventions because they only tell us about relative popularity within attributes or between two attributes (not controlling for all other attribute levels presented in each choice set). Nonetheless, they are of interest because they can validate the approach. (For example, male doctors being preferred to female doctors for maternal care in Bangladesh would suggest that respondents did not understand the task presented to them in the survey because interviewed experts and focus group participants in the formative research all agreed

[5] http://www.stata.com/

that female doctors were highly desirable to maternal care service clients.) The count analysis also provides simple two-way comparisons between attributes. For example, dirty facilities with brand drugs available being preferred to clean facilities with inconsistent drug supply would suggest that the availability of brand/recognized drugs is a more desirable attribute than facility environment to prospective clients. However, to understand the relative importance of individual attributes compared to all the other attributes, more complex analyses are required and these are described next.

2.4 DCE Hierarchical Bayes

In Bayesian analysis, we investigate the probability distribution of the parameters "given the data," as opposed to traditional statistics where we investigate the probability distribution of the data, given the assumptions embodied in the selected statistical model and its parameters. In HB estimation, the 'hierarchy' is due to the assumption that:

- At a higher level, it is assumed that individuals' part worths (utility for each attribute) are described by a multivariate normal distribution. This distribution can be characterized by a vector of means (of the part worths) and a matrix of variances and covariances of the part worths across all individuals in the sample.
- At a lower level it is assumed that, given an individual's part worths, his/her probabilities of choosing particular alternatives are governed by a multinomial logit model.

Using a Monte Carlo Markov Chain, the part worth means, variance, and covariances are iteratively estimated from repeated drawings from the dataset. Typically, thousands of iterations are required to achieve convergence of estimates.[6] Average part worths across all the individuals/respondents are presented in the results section of this report as 'average utilities' for each attribute.

A utility is a measure of **relative** desirability or worth. When computing utilities using logit or HB, every attribute level in a conjoint project is assigned a utility. ***The higher the utility, the more desirable the attribute level relative to the other attributes studied.*** Attribute levels that have high utilities have a large positive impact on influencing respondents to choose products. In this analysis, the objective is to identify attribute levels with higher utilities in order to design or prioritize interventions that make those health facility attribute levels more widely known (or available) since they likely have the most impact on influencing respondents when they make health care seeking decisions.

Average importance is a measure of how much difference an attribute makes to the overall utility (across all attributes) of a product. In this study, the 'product' is seeking care at a health facility. Average importance is the difference between the highest and lowest attribute levels within a single attribute scaled as a percentage of all the sum of attribute ranges.

For example, if 'provider attitude' utilities ranged from 20 to 50, that would be a utility range of 30 (as in 50 minus 20). If 'provider type' ranged from 10 to 100, that would be a utility range of 90. The two range difference sum to 30 + 90 = 120. Average importance for provider attitude would be (30/120)*100 = 25%) and the average important of provider type would be (90/120)*100 = 75%).

This measure is less useful than the average utility but does allow us to review and compare with the workshop ranking where only attributes were ranked.[7]

[6] http://www.sawtoothsoftware.com/download/ssiweb/CBCHB_Manual.pdf

[7] During the attribute workshop, participants were asked to rank the nine attributes from 1 to 9 with 1 being the most important.

3. RESULTS

This chapter presents the study findings, starting with a description of the respondents' households and their health seeking behavior. Then, the DCE results for maternal and child health services are presented in terms of the average importance of each attribute and the average utility of each attribute level. The average utility rankings can be used to identify and prioritize potential interventions for increasing utilization. The DCE results in terms of counts are presented next so that the attribute levels can be examined in detail but these data do more to confirm the validity of the approach and findings than to assist with ranking potential interventions. The same count data also allow an examination of interactions between two attributes. Finally, with the importance that NHSDP places on reaching the poor and the POP, the DCE results are presented by SES.

3.1 Household characteristics

A total of 600 households were visited; 300 received the maternal DCE survey and 300 received the child health DCE survey. All households received the ancillary household survey, the results of which are shown for all households and respondents in Table 4. All households included in the survey were located within a three-hour drive of Dhaka. All were located in urban or peri-urban areas. For these reasons, the results of this study probably are not generalizable to the more rural areas and households of Bangladesh. Several catchment areas could be termed "urban slums"; they are very densely populated.

Households within the sample tended to be quite large with on average 10 members, but the number of children the household was on average only 2.6. Nearly all households had male household heads.

Table 4: Household and respondent characteristics

Area	N	%
Urban	453	75
Peri-urban	148	25
SES (defined by clinic)		
	Urban %	Peri-urban%
Non-poor	9.4	50.7
Poor	64.8	39.9
Poorest-of-the poor	25.8	9.5
Household size		
	Mean	Std. Err.
	10.4	2.2
Number of children <5		
	Mean	Std. Err.
	2.6	1.1
Household head		%
Female		3.7
Male		96.3
Respondent gender		%
Female		89
Male		11

Area	N	%
Respondent Education		%
No education		24.3
Primary Level (years 1 to 4)		8.4
Junior Level (years 5 to 8)		42.3
Secondary Level (years 9 to 10)		19.7
Higher Secondary Level (years 11 and 12)		3.4
Tertiary Level		1.3

The survey respondents tended to be female and married, which is to be expected given the inclusion criteria. Further detail on household characteristics can be found in Annex C. Due to the importance of SES classifications to NHSDP service delivery targets, Annex D also presents household characteristics by SES classifications used by NHSDP: poorest of the poor, poor and non-poor.

3.2 Health seeking behavior

Survey respondents were asked about the recent health seeking behavior for sick children and pregnant women in their households in terms of if and where they sought care. Figure 2 shows the results: Households with sick children and pregnant women tend to seek curative care for the children (92 percent) and ANC services for women (88 percent). However, health seeking drops significantly when the women deliver their babies; not even two-thirds (64 percent) seek care for delivery (although we note that this figure is higher than the 2011 Demographic Health Survey estimate of 50.5 percent urban deliveries occurring at home).

Figure 2 Precentage of people in need of care that sought care, by type of care

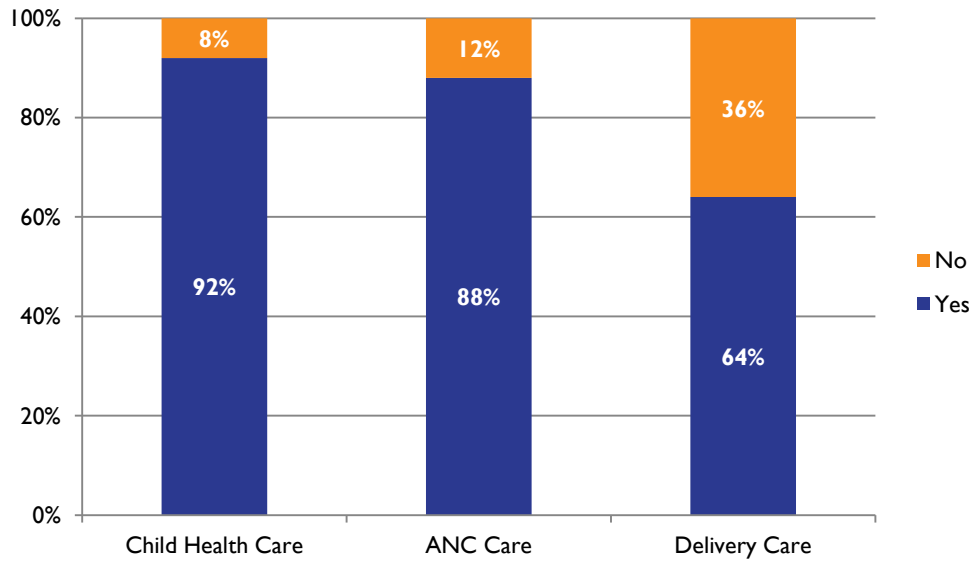
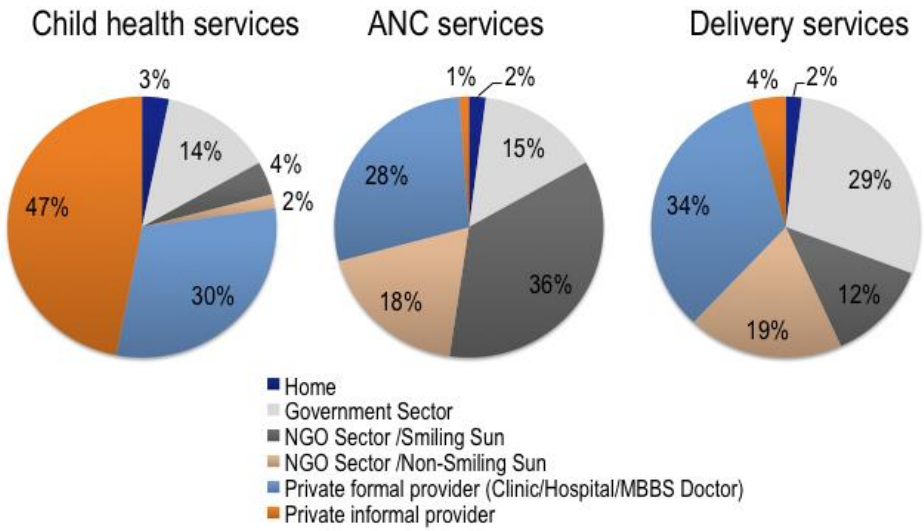


Figure 3 shows household responses for which types of health facilities they choose when they seek care for child, pregnancy, and delivery services. Child health services were sought from the private formal private (30 percent) and informal private (47 percent) sectors. (Formal providers are professional health care providers, while informal providers include medicine vendors with no formal training.) ANC services were sought mainly from the NGO sector, largely from Smiling Sun (36 percent) and other NGO providers (18 percent), although a substantial proportion (28 percent) were sought from formal private providers. In contrast, there is less variation in facilities that provide delivery services (to the 64 percent of household that sought care for delivery outside the home): while a third (34 percent) are in the formal private sector, approximately another third are in the NGO sector (31 percent) and nearly a third (29 percent) are in the government sector.

Figure 3: Household health seeking behavior for child and maternal services



In general, NGO providers charge for services although they waive fees for certain SES groups. At the time of data collection, there were a total of 327 clinics in the Smiling Sun network. Of these 16 percent were ultra clinics, which as noted above have the capacity to provide comprehensive delivery services, while the remaining 84 percent were vital clinics that do not provide delivery services.

In summary, households needing child health service nearly always sought care but nearly half of that care came from informal private providers and nearly a third from formal private providers. Government and NGOs accounted for very little. In households seeking ANC services, again, nearly all the households sought care but more than a half came from the NGO sector, including over a third from a Smiling Sun facility, while a quarter came from the formal private sector. However, for the two-thirds of households in which a woman who delivered a baby in the previous two years sought care, this care was almost evenly split between formal private, NGO, and government providers.

3.3 Smiling Sun facility awareness

Respondents were also asked questions to determine their level of familiarity with Smiling Sun facilities and the results are shown in Table 5. Awareness of Smiling Sun facilities is relatively high: 83 percent of respondents are aware of a clinic in their area. Respondent knowledge of the availability of ANC at Smiling Sun facilities is also high (82 percent). More than three-quarters (78 percent) of respondents were aware that immunization services were available. However, familiarity with the availability of other services falls quite dramatically. Approximately half of respondents knew that non-clinical methods of family planning and PNC were available. But less than a quarter of respondents were aware that clinical family planning methods or child health services were available.

Table 5: Familiarity with Smiling Sun facilities

Awareness of Smiling Sun clinics	%
Yes	83
No	11
Don't know	5
Family planning	
Clinical method	21
Non-clinical method	42
Maternal health	
ANC	82
PNC	53
Tetanus toxoid	27
Child health	
Immunization	78
Diarrhea treatment/oral rehydration solution	3
Acute respiratory infection treatment	1
Vitamin A	25
Illness (general)	28
Other	
General health	15

Respondents were asked whether they had seen the Smiling Sun symbol on any of the locations/ items listed below in Table 6. Nearly three-quarters of them had seen the symbol on a sign at a health clinic. Approximately a quarter had seen the symbol on a banner or billboard but few had seen the symbol in other media such as posters or television.

Table 6: Where people have seen the Smiling Sun symbol

Where have you seen this Smiling Sun symbol? (n=566)	Count*
On a sign at a health clinic	407
Banner	156
On a billboard sign /sign board	137
On television (advertisement)	80
On a poster	14
On a pamphlet or brochure	10
On television (drama)	7
Other	3

* Respondents stated all places where they have seen the symbol

Additional data regarding respondents perceptions of Smiling Sun facilities and how they think the facilities could be improved are provided in Annex E. Mostly they suggested increasing the range of services provided and the number of more highly trained medical staff but the availability of brand drugs and diagnostic services were also mentioned.

3.4 Discrete choice experiment results

This section of the results introduces the DCE results obtained from the DCE survey that was administered; 300 respondents received surveys on maternal services and another 300 on child services.

3.4.1 DCE attribute rankings by average importance

As previously described, during the process of developing the DCE tools, a workshop was held to determine which attributes should be explored in the DCE by ranking the attributes identified in the qualitative activities. The results from this ranking are shown in the first data column of Table 7. The second and third data columns show the rankings according to the average importance estimates derived from the HB estimation described in the **Error! Reference source not found.** chapter Chapter 2). It should be noted that the respondents' rankings are derived from their responses to scenarios of combinations of attributes whereas the providers' rankings were determined from the individual rankings of attributes across approximately 40 project directors, clinic managers, and health promoters from NGOs in the NHSDP network.

Although Table 7 provides only summary data on high-level concepts (attribute details are discussed in the next section), it shows the differences in the rankings by looking at the example attributes in the shaded cells, provider attitude and provider type. The attributes that providers determined were the most important were not necessarily what the respondents thought were the most important. Similarly, the attributes that respondents thought were most important for child health services were not necessarily ranked the same way for maternal health services.[8]

Table 7: DCE attribute rankings

	DCE attribute workshop rankings	DCE results: maternal services (attribute importance)	DCE results: child services (attribute importance)
1	Provider attitude	Continuum of maternal care (ANC ➔ delivery by CS)	Continuum of child care (with referral + transport)
2	Provider type	Drug availability	Accountability
3	Continuum of maternal care (ANC ➔ delivery by CS)	Waiting times	Provider attitude
4	Price	Provider attitude	Waiting times
5	Field worker contact	Provider type	Facility environment
6	Continuum of child care (with referral + transport)	Accountability	Provider type
7	Drug availability	Price	Price
8	Waiting times	Diagnostic services	Diagnostic services
9	Facility environment	Facility environment	Drug availability
10*	Accountability	N/A*	N/A*

Note: CS = Caesarian Section

* Providers ranked both continuum of care for maternal and child services whereas respondents were only presented with one or the other.

[8] Recall that although respondents only answered one of the surveys, child or maternal care, these surveys were randomly selected for each respondent.

Finally, it should be noted that:

- The ranked attribute data as shown do not say anything about whether the attribute at the top of the list is much more desirable than the second attribute or only slightly more preferred. For that comparison, quantitative information is required. The average importance values are presented in Annex F (maternal health) and Annex G (child health); while these average importance values are interesting to note, they don't assist with the primary objective of this study: prioritization.
- This ranking of *attributes* is not the same as the ranking of *attribute levels* and are therefore of limited use for prioritization because the data don't tell us which specific issue we should be addressing within 'provider type' (e.g., are nurses preferred slightly or greatly to male doctors?) or 'drug availability' (e.g., are patients indifferent between branded and non-branded drugs?).

3.4.2 DCE attribute rankings by average utility

The next set of results provides a quantitative understanding of what the data tell us about specific attribute levels. Table 8 shows the most desired attributes as expressed by the study population in terms of the utility scores for each attribute level. In other words, all attributes are ranked, by utility, against all other attribute levels. Brand drug availability is the most desired for both maternal and child services. Polite provider is an attribute ranked in the top three for both services.

Table 8: Most desired attributes of maternal and child care facilities

Most desired aspects of maternal care (attribute level by average utility)		Most desired aspects of child care (attribute level by average utility)	
Brand drugs available	55.08	Brand drugs available	74.40
Up to C-section delivery service available (including ANC, PNC, and normal delivery)	54.52	Polite provders	57.41
Polite providers	47.70	Clean facility environment	41.71
Female doctor	29.64	Available phone line for making complaints	39.40
Diagnostic services available	29.22	Diagnostic services available	37.84
Clean facility environment	25.77	Waiting time less than 1 hour	32.64
Available phone line for making complaints	10.30	Female doctor	20.79
No waiting time	8.90	Availability of child health services with ambulance for referral	3.32
Normal delivery 600 BDT	1.26	Child visit at 15 BDT	3.21

Note: BDT = Bangladeshi Taka

Although "utility" cannot be described as a tangible entity in and of itself, the relative utility values shown give an indication of how much more desirable one attribute is relative to another. Among maternal services, it can be observed that brand drug availability, a full continuum of care (up to and including C-section services), and polite providers are relatively close in terms of utility and all three are more highly valued than other attributes (e.g., the female doctor attribute is over 10 utility points less than polite providers.) For child services however, brand drug availability is much more desirable than any other attribute level. Beyond the top attributes, it should be noted that a clean facility environment and the availability of a phone line for making complaints rank quite highly for both services. The complete list of average utilities for all attribute levels as estimated by HB and by logit approaches can be found in Annex H and Annex I respectively (maternal health) and Annex J and Annex K respectively (child health).

3.4.3 DCE attribute levels by count data

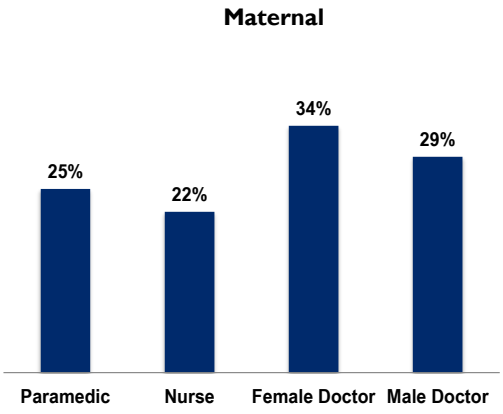
Count data and analysis provide an indication of the relative popularity of the different attribute levels within a single attribute. Results for each of the nine attributes are presented below. It is important to recall that these quantitative data do not allow for a comparison between attributes, only within individual attributes.

3.4.3.1 Provider type

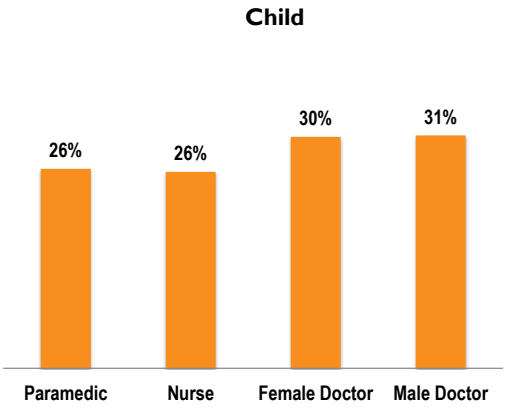
Four provider types were explored: paramedic, nurses, female doctors, and male doctors. Attribute workshop participants agreed that, given that paramedics and nurses tended to be female, the preference between male and female doctors was more important. (From a methods perspective, it is better to reduce the cognitive burden on the respondent by having fewer options for comparison and fewer scenarios.)

In Figure 4, the *a priori* expectation that doctors are preferred to nurses and paramedics held true for both maternal and child services. For maternal services, female doctors are preferred, again as expected. For child services there is no gender preference, which seems logical.

Figure 4: Provider type attribute level preferences



Note: Within attribute diff Chi, p<0.01

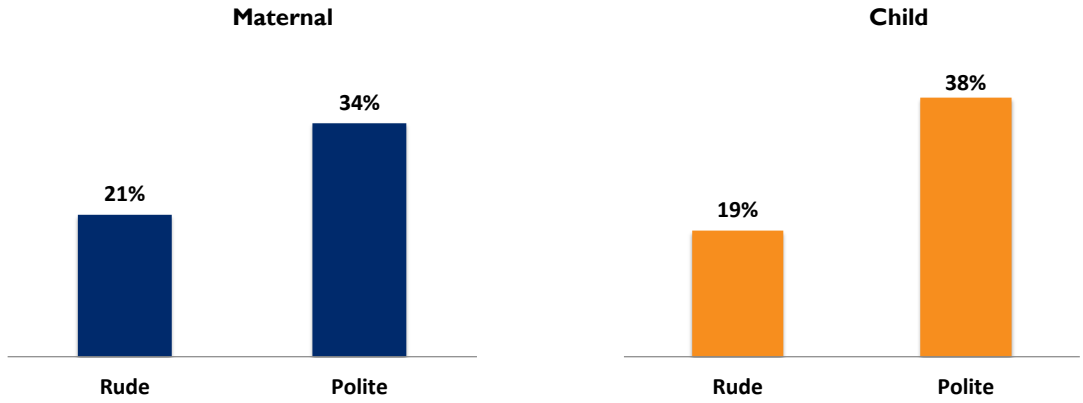


Note: Within attribute diff Chi, p<0.01

3.4.3.2 Provider attitude

Provider attitude was described in a very rudimentary way, with respondents asked for their preference between rude and polite providers. As expected, respondents chose facility scenarios where the providers were polite more often than scenarios where the providers were rude, as shown in Figure 5.

Figure 5: Provider attitude attribute level preferences



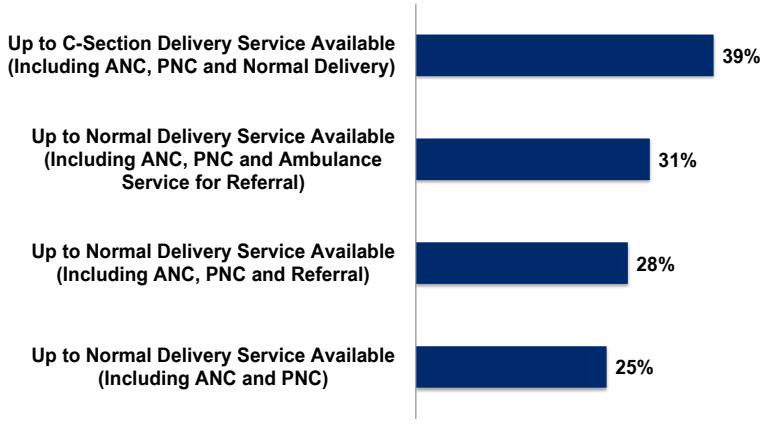
Note: Within attribute diff Chi, p<0.01

Note: Within attribute diff Chi, p<0.01

3.4.3.3 Continuum of maternal care

Continuum of maternal care referred to a basic service where ANC and PNC were available at a facility as well as normal delivery services only. The second step along the continuum would be the same basic services but with referral for complicated deliveries, the third step includes all the services from the second step but with an ambulance available for the referral, and the fourth step would be a health facility with the ability to provide non-normal deliveries with no need for any referrals. A priori, it was expected that this fourth step would be chosen the most often when offered as part of a health facility scenario and this was the case. In fact, Figure 6 shows that there is a clear linear relationship between preference and continuum of care.

Figure 6: Continuum of maternal care attribute level preferences

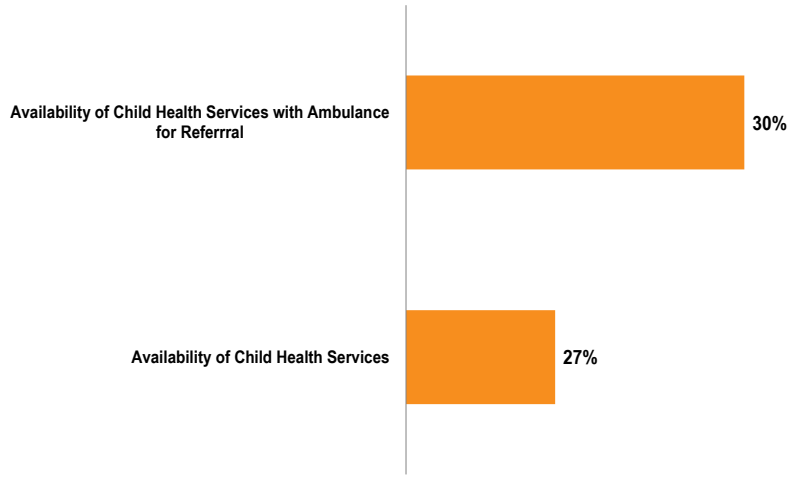


Note: Within attribute diff Chi, p<0.01

3.4.3.4 Continuum of child care

As with maternal care, respondents to the child health survey chose health facility scenarios that included a wider continuum of care over one that included an ambulance for referral, as shown in Figure 7.

Figure 7: Continuum of child care attribute level preferences

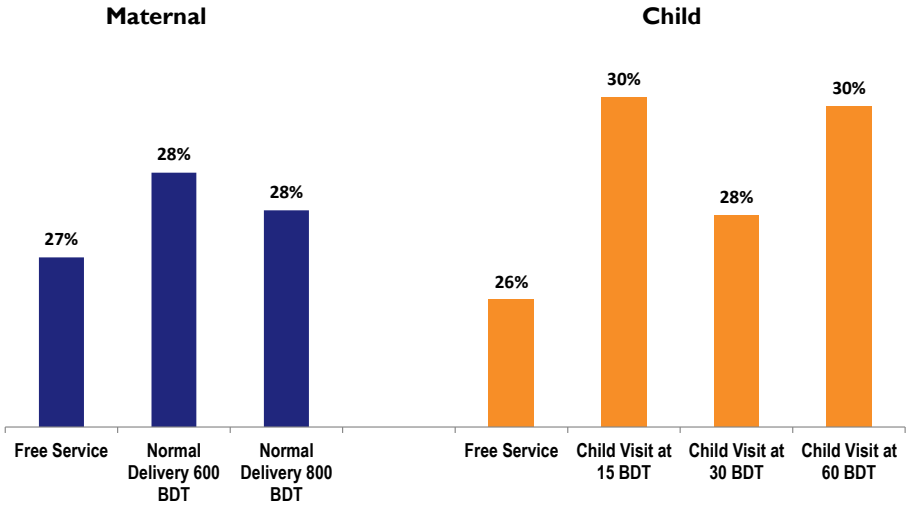


Note: Within attribute diff Chi, p<0.01

3.4.3.5 Fees

Unlike the attribute counts discussed regarding this point, there did not appear to be much variation in preference between not having fees, and the fees for child and for maternal services in the NHSDP fee schedule. Although some variation is seen in Figure 8, it should be noted than neither of the two groups of attribute levels showed any statistically significant differences between price levels and there was no apparent preference for free services. It is likely that the price levels of the fee schedule were too close together (keeping in mind that in 2014 the exchange rate was approximately 70–76 Taka to US$1). It is also important to remember that these are relative preferences; therefore, it is possible that if substantially higher prices were introduced as options with no low-price options, there might have been a stronger preference for free services.

Figure 8: Fee attribute level preferences



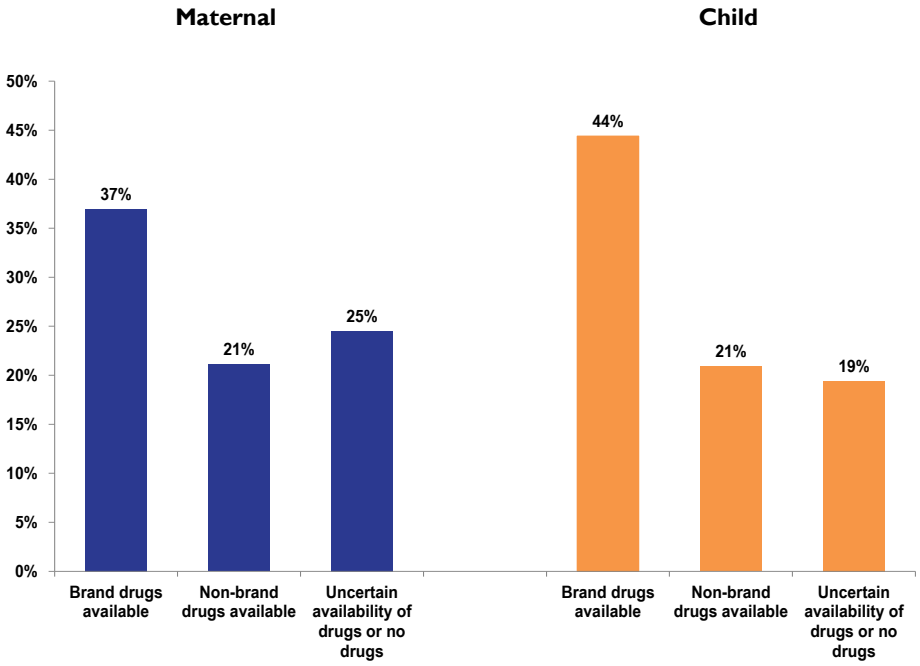
Note: Within attribute diff Chi, p value not significant

Note: Within attribute diff Chi, p<0.05

3.4.3.6 Drug availability

For drug availability, respondents showed a strong and clear preference for health facility scenarios that included brand drugs available for both maternal and child services, as shown in Figure 9. Furthermore, respondents to the child health services survey appeared indifferent between non-brand drugs and uncertain availability of drug but this was less so for maternal services.

Figure 9: Drug availability attribute level preferences

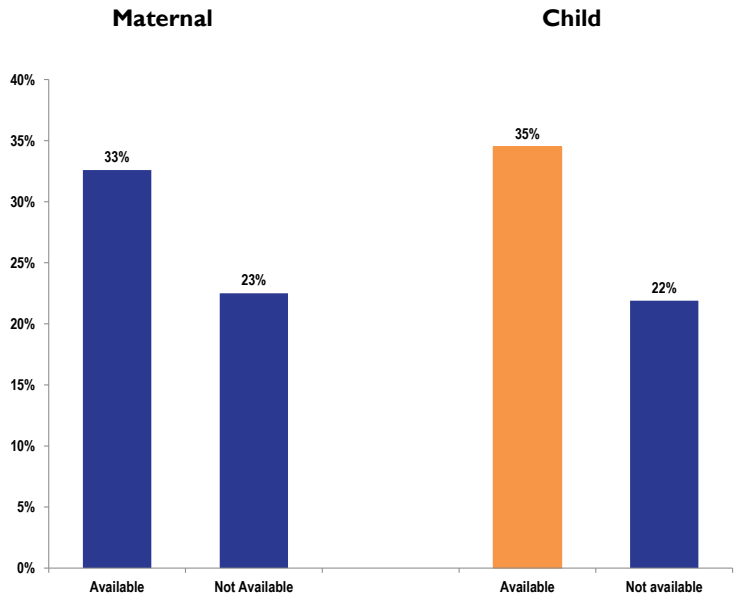


Note: Within attribute diff Chi, p<0.01 Note: Within attribute diff Chi, p<0.01

3.4.3.7 Diagnostic services

As expected, respondents showed a clear preference for health facility scenarios that included the availability of diagnostic services such as basic laboratory tests (see Figure 10).

Figure 10: Diagnostic services attribute level preferences

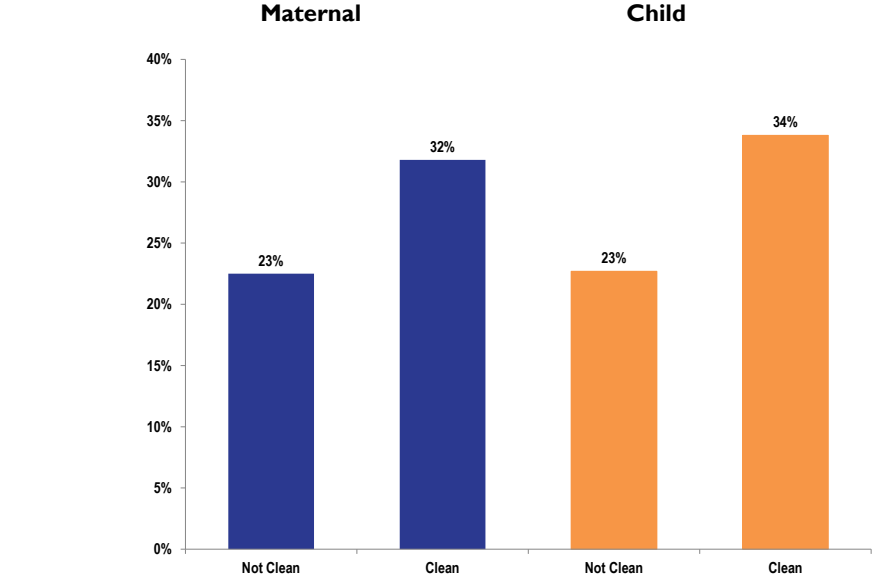


Note: Within attribute diff Chi, p<0.01 Note: Within attribute diff Chi, p<0.01

3.4.3.8 Facility environment

As expected, respondents showed a clear preference for health facility scenarios that included a clean facility environment (see Figure 11).

Figure 11: Facility environment attribute level preferences

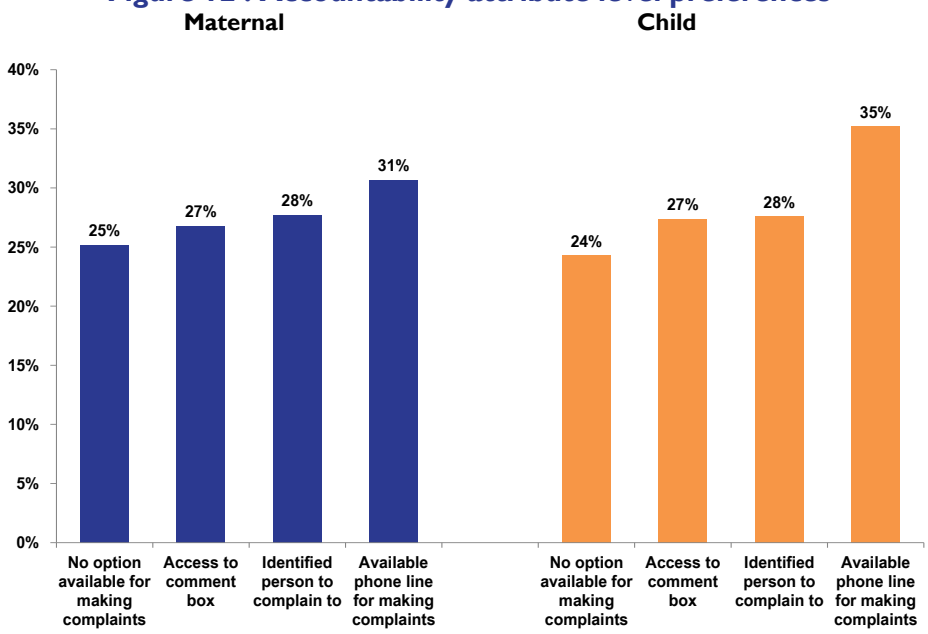


Note: Within attribute diff Chi, p<0.01 Note: Within attribute diff Chi, p<0.01

3.4.3.9 Accountability

For maternal services, accountability as described in this DCE did not show much variation in preference between having no way to complain about services as compared to complaint boxes, an assigned individual to speak to, or access to a phone line for making complaints. For child services, however, there was a clear preference for having access to a phone line (see Figure 12).

Figure 12 : Accountability attribute level preferences

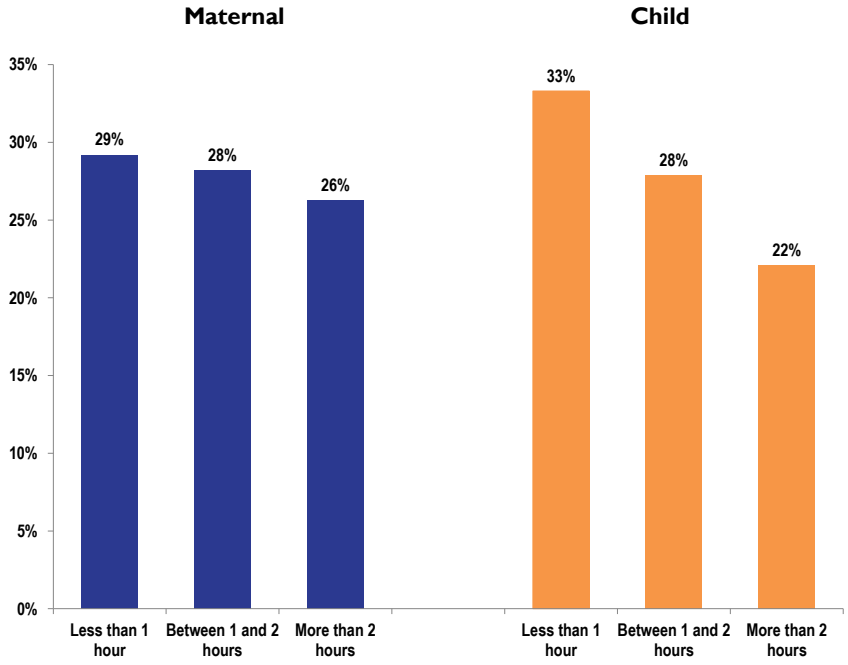


Note: Within attribute diff Chi,
p value not significant
Note: Within attribute diff Chi, p<0.01

3.4.3.10 Waiting times

For maternal services, there was little variation in preferences regarding having no, short, or longer wait times (see Figure 13). For child services, having no wait was clearly preferable. Although there is no consensus, it should be noted that the desirability of longer wait times is negative, again supporting the notion that respondents understood what was being asked of them in the survey.

Figure 13: Waiting times attribute level preferences



Note: Within attribute diff Chi,
p value not significant
Note: Within attribute diff Chi, p<0.01

3.4.4 DCE attribute level interactions

Looking at two-way comparisons between attributes is a starting point for comparing the preference between attributes or for ranking attributes in importance. Interactions were estimated across all the attributes but not all of these were statistically significant (see Table 9). (Hence the need to run the HB analysis to be able to use all the data supplied by individual respondents rather than average counts, and to be able to compare all the attributes to one another at the same time.)

Table 9: Attribute interactions of statistial signficance (p< 0.01)

	Provider Type	Provider Attitude	Price	Continuum of Maternal Health Care	Drug Availability	Diagnostic Services	Facility Environment	Accountability	Waiting Times
Provider Type		✓	✓	✓			✓	✓	✓
Provider Attitude			✓	✓					
Price				✓	✓		✓	✓	
Continuum of Maternal Health Care					✓	✓	✓	✓	✓
Drug Availability									✓
Diagnostic Services							✓	✓	
Facility Environment									
Accountability									
Waiting Times									
				Continuum of Child Health Care					
Provider Type			✓		✓				
Provider Attitude					✓				
Price							✓	✓	✓
Continuum of Child Health Care									
Drug Availability									
Diagnostic Services								✓	
Facility Environment									
Accountability									
Waiting Times									

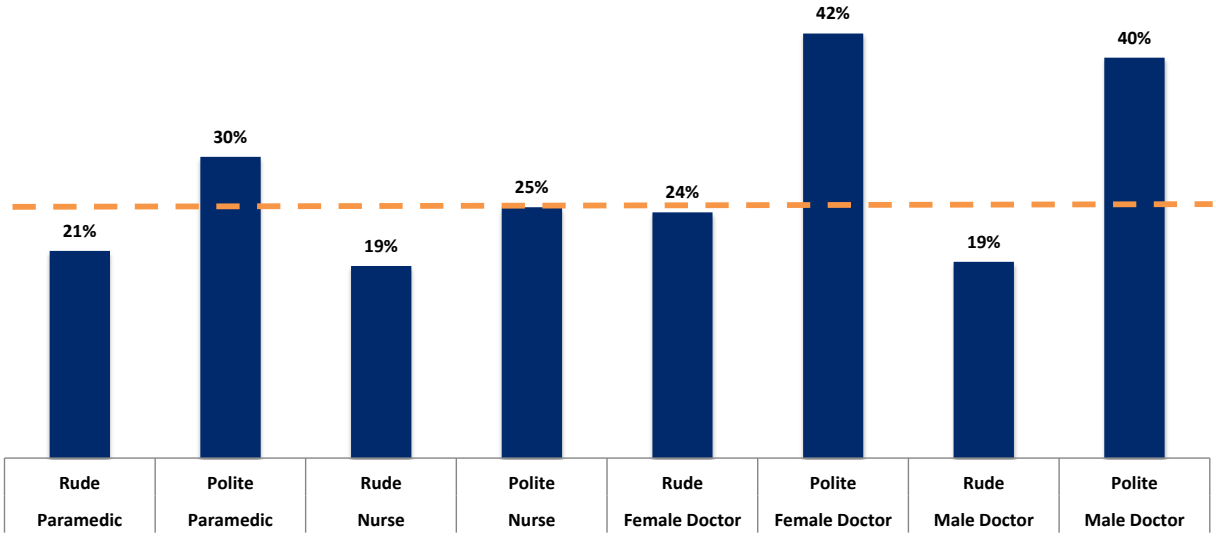
Several of the more intuitive and statistically significant comparisons are shown below; results for all interactions are presented in the Annex L (maternal services) and Annex M (child services). The interactions with provider attitude and brand drug availability are deemed to be the most important because they relate to attributes for which NHSDP can design interventions, although further investigation may be required. While continuum of care is obviously of great importance to the surveyed population, it requires long-term infrastructural interventions that may or may not be possible for NGOs to undertake. Price is also an important attribute to investigate but, as previously noted, the price points studied here do not represent enough variation to provide informative results, being both too close in value and too low for NGOs to maintain long term. For this reason, only one interaction, with drug availability, is highlighted below.

Another reason to review interactions is that it provides readers with a sense of how the quantitative data can be used to compare attributes to one another across attribute levels. The actual HB analysis completed is more complicated but it can be thought of as repeated comparisons across attribute levels and attributes, many variables at the same time.

3.4.4.1 Provider attitude vs provider type

In Figure 14, the portions of the vertical blue bars that lie above the horizontal dotted line show that respondents choose to have a polite provider regardless of the provider type meaning that polite providers of any skill level are always preferred to rude providers of any skill level. For example, a polite paramedic scenario was chosen more often than a scenario with a rude doctor even though the previous results for provider type alone showed that respondents preferred male doctors to paramedics: adjusting for provider attitude affects that preference.

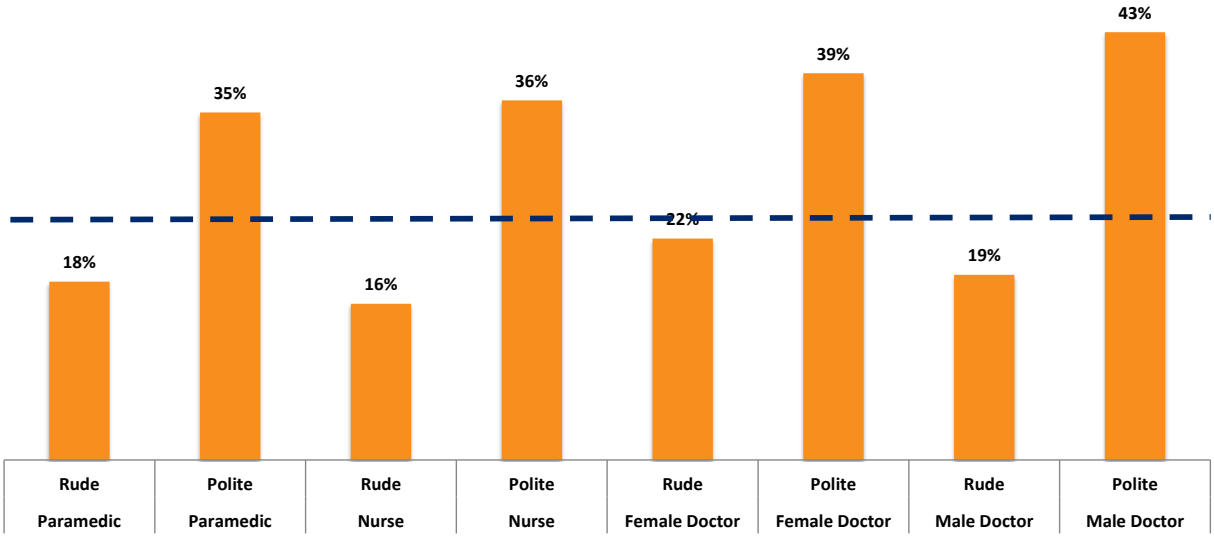
Figure 14: Attibute interaction between provider type and provider attitude for maternal health



Note: Within attribute diff Chi, p<0.01

In Figure 15, the same comparison for child health shows an even more marked preference for polite providers over more skilled providers.

Figure 15: Attibute interaction between provider type and provider attitude for child health

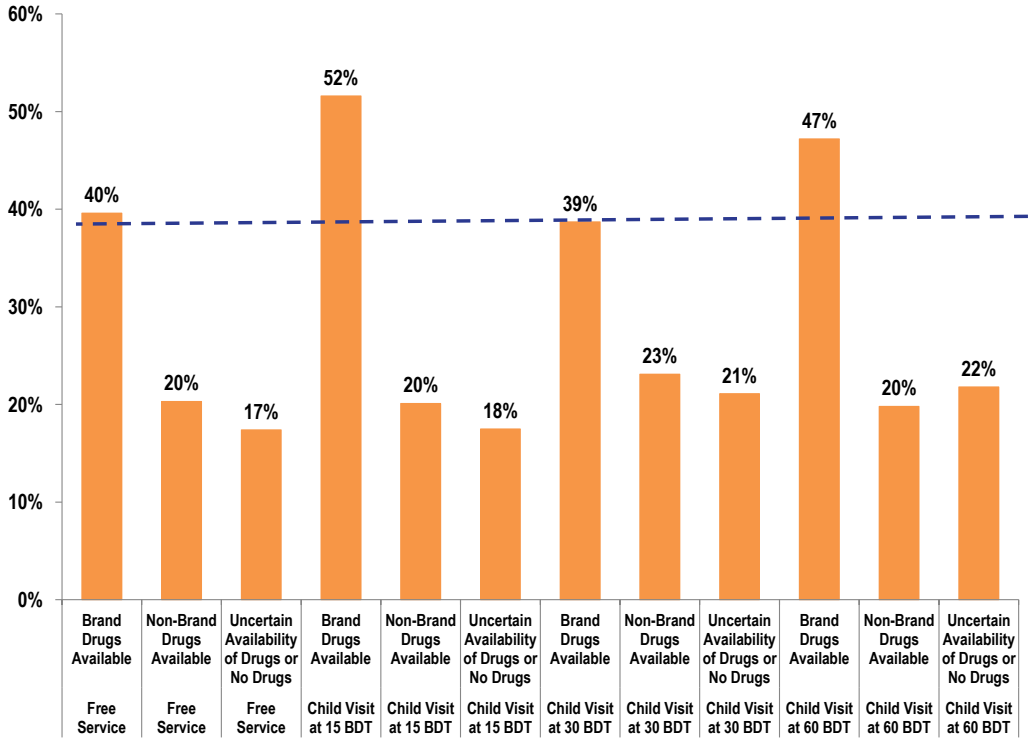


Note: Within attribute diff Chi, p<0.01

3.4.4.2 Drug availability vs price of child health service

Figure 16 emphasizes the previous results that indicate that brand drug availability is a highly desirable attribute. We see that health facility scenarios that included the availability of brand drugs were chosen more often regardless of the price (although the interaction's statistical significance is weak).

Figure 16: Attibute interaction between drug availability and prices for child health

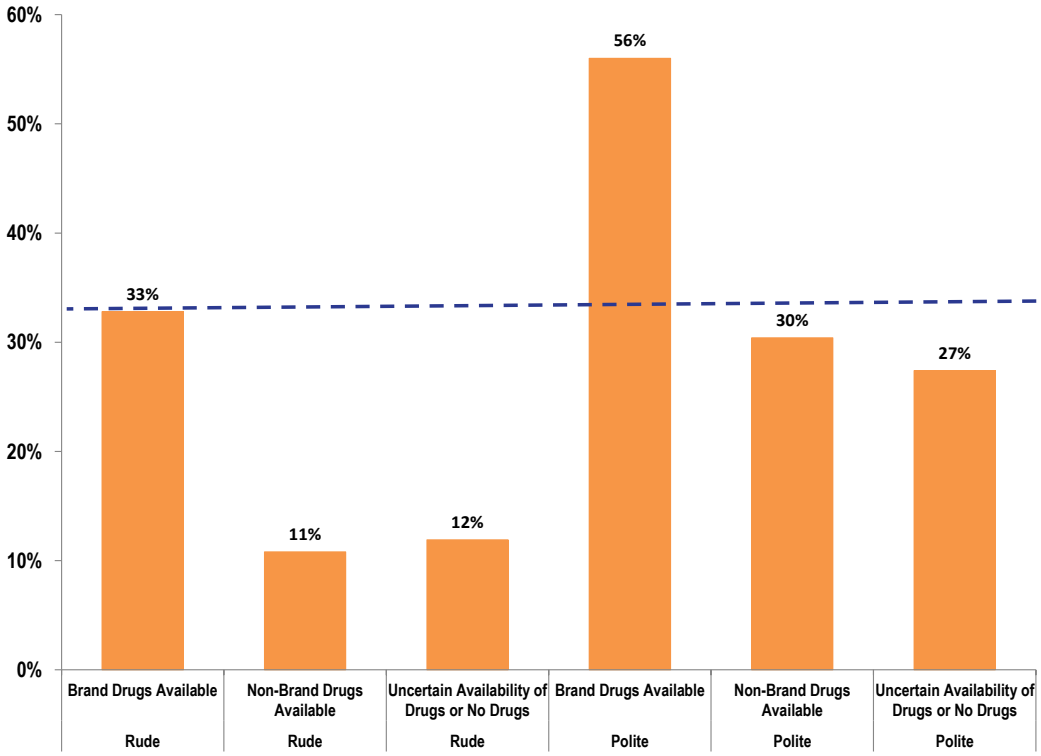


Note: Within attribute diff Chi, p<0.05

3.4.4.3 Drug availability vs provider attitude

Given the previously noted preference for polite providers, we also present the interaction between drug availability and provider attitude. Once again, branded drug availability appears more desirable regardless provider attitude, supporting its high ranking as an attribute. Respondents were slightly more likely to choose brand drugs even if the scenario included rude providers (see dotted line in Figure 17).

Figure 17: Attibute interaction between drug availability and provider attitude for child health



Note: Within attribute diff Chi, p<0.01

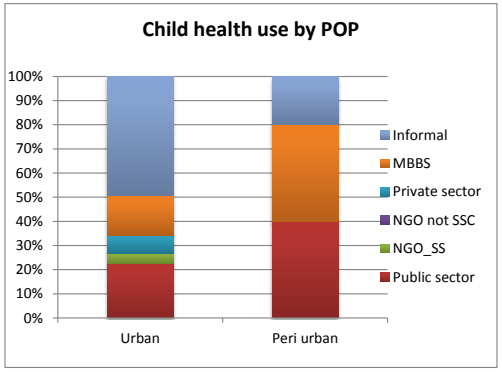
3.4.4.4 SES and the DCE results

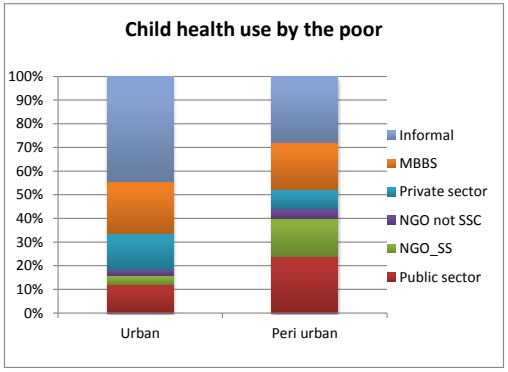
NHSDP has specific targets from its funders with regards to its service delivery to the poor and POP: 40 percent of its services should be delivered to these two groups. Therefore, appealing to these clients is of critical importance to the project.

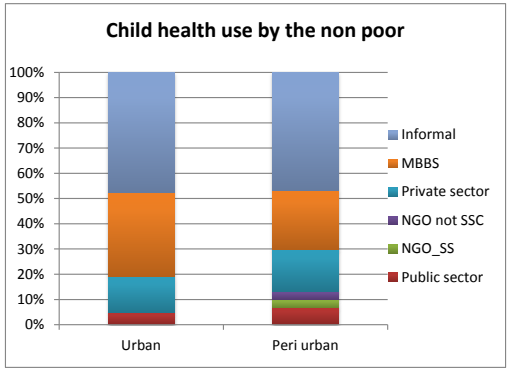
The results of the health seeking behavior questions are presented again in Figure 18 but this time broken out by SES group (POP, poor, and non-poor) and by location (urban, peri-urban).

We note that one of the findings/statements made in the focus group discussion with potential respondents/NHSDP clients is borne out by the results; some discussants said that they choose a facility based on the service they need. For example, the first column of Figure 18 shows no pattern in POP health seeking behaviors across child, antenatal, and delivery care – informal private providers are mostly used for child health services, Smiling Sun facilities for ANC services, and formal private providers for delivery services.

Figure 18: Health seeking behavior by SES and location



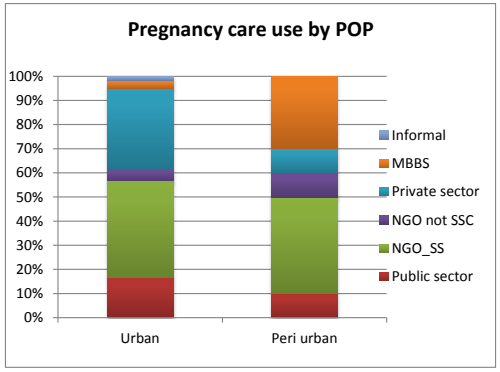


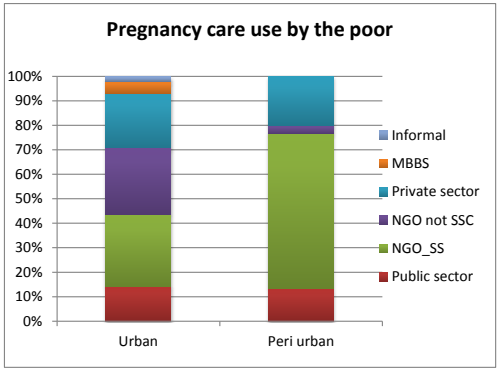


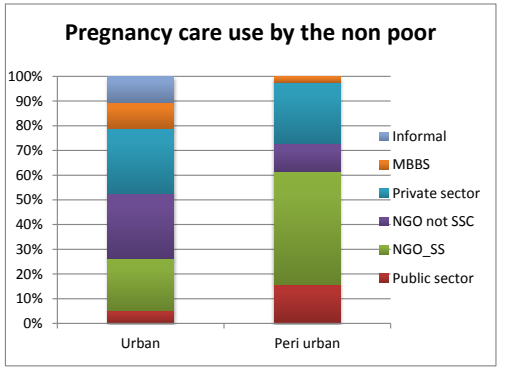
POP make relatively more use of the public sector

All SES groups tend to use the private informal sector

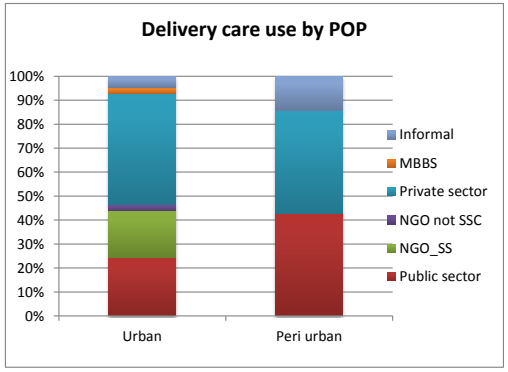
No SES group uses NGO facilities to a significant extent except the poor in peri-urban sites

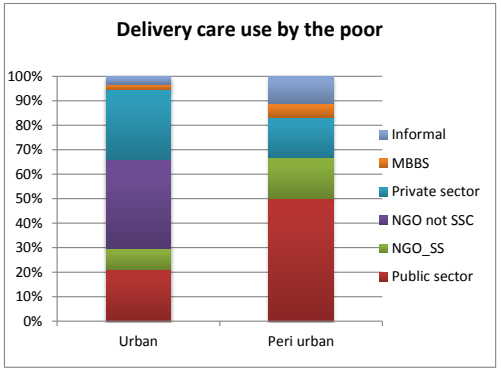


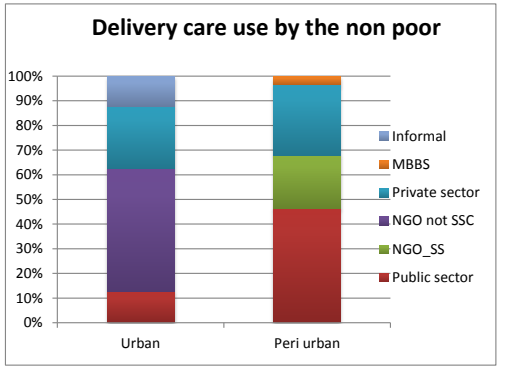




All SES groups tend to use Smiling Sun, (particularly in peri-urban areas), more so than any other sector







All SES groups, even POP, tend to use the formal private sector and the public sector, probably due to the limited availability of normal and assisted delivery services in the NGO sector

Note: MBBS= Medicinae Baccalaureus, Baccalaureus Chirurgiae , SSC= Smiling Sun Clinic

Having looked at maternal health seeking behavior by SES, we present the DCE results by SES group and then by location. Figure 19 shows there was little difference in attribute importance across SES groups: continuum of care was most important for all groups followed by provider type, accountability, and drug availability. Facility environment and the diagnostic services were least important across all SES groups.

Figure 19: Respondent preference/utilities for maternal health services by SES classification

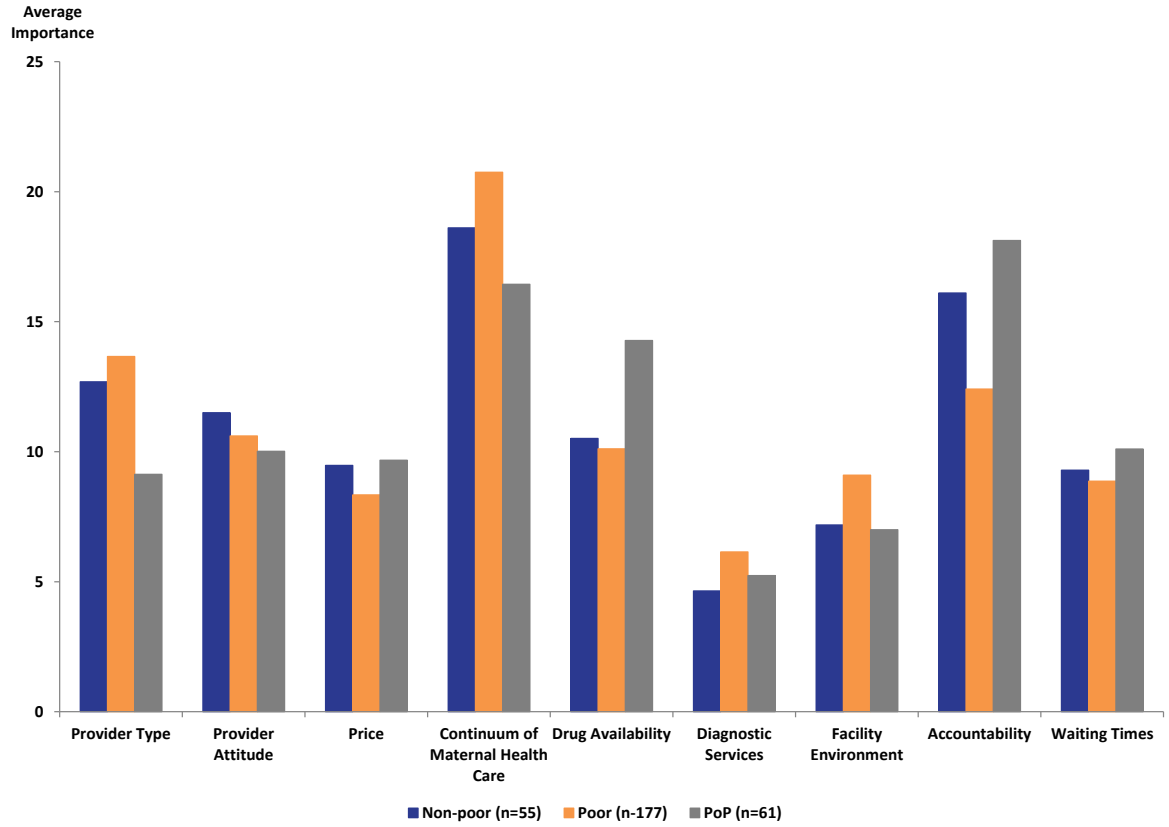
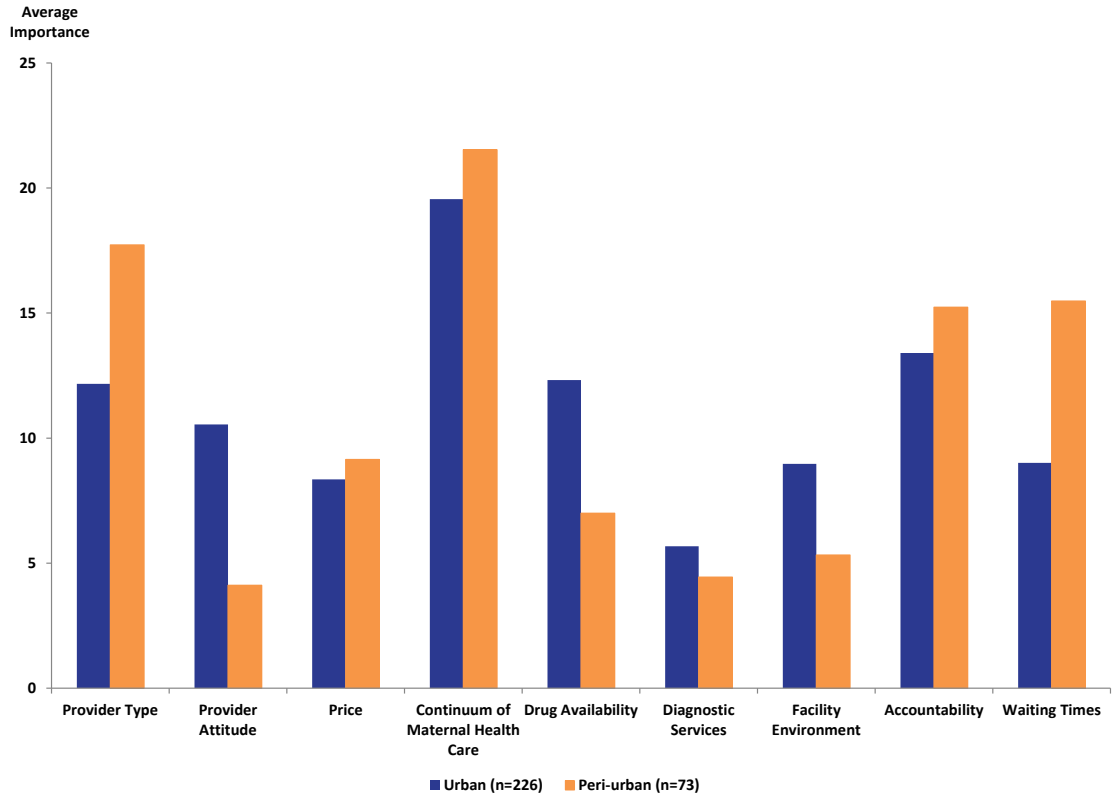


Figure 21 shows there also was little difference in attribute importance by location, although there was some variation between urban and peri-urban preferences for some attributes (provider type, provider attitude, and drug availability).

Figure 20: Respondent preference/utilities for maternal health services by urban/peri-urban location



Findings by SES group and location were similar for child health seeking behavior, but for different attributes. Figure 21 shows that, generally, there was little difference in attribute importance across SES groups: availability of drugs was most important for all groups followed by accountability and waiting times. Continuum of care and diagnostic services were least important across all SES groups.

Figure 21: Respondent preference/utilities for child health services by SES classification

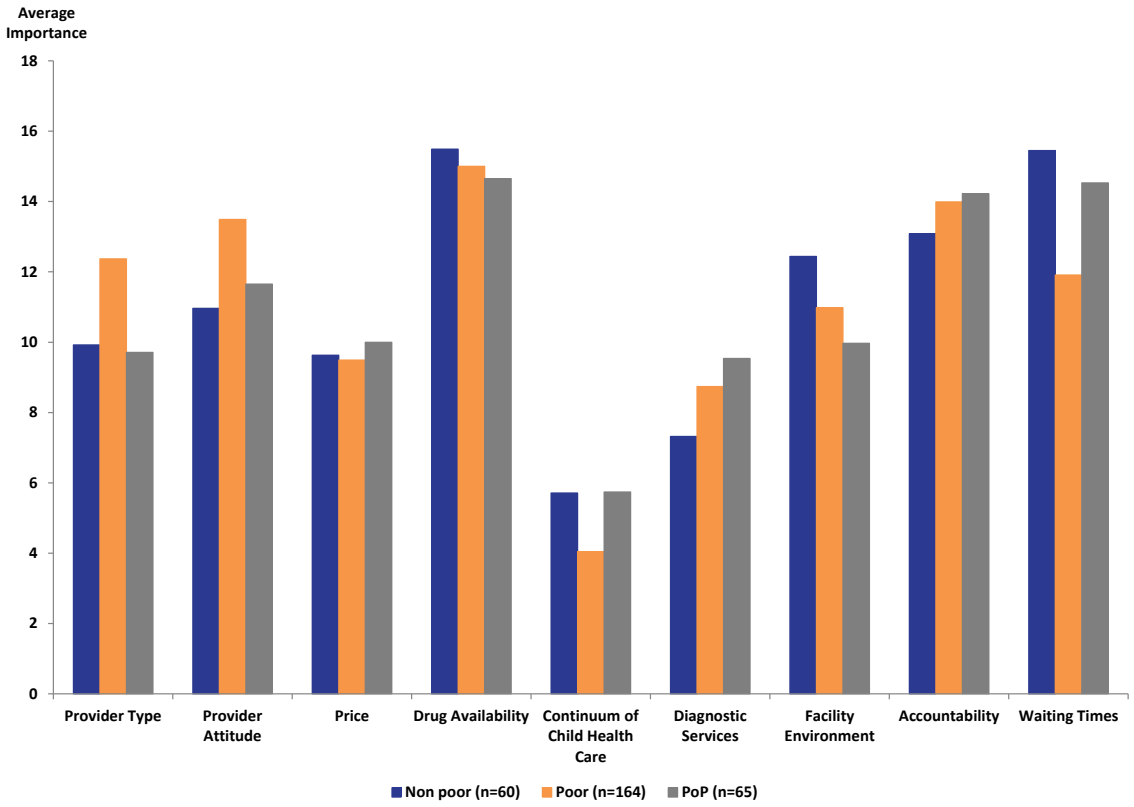
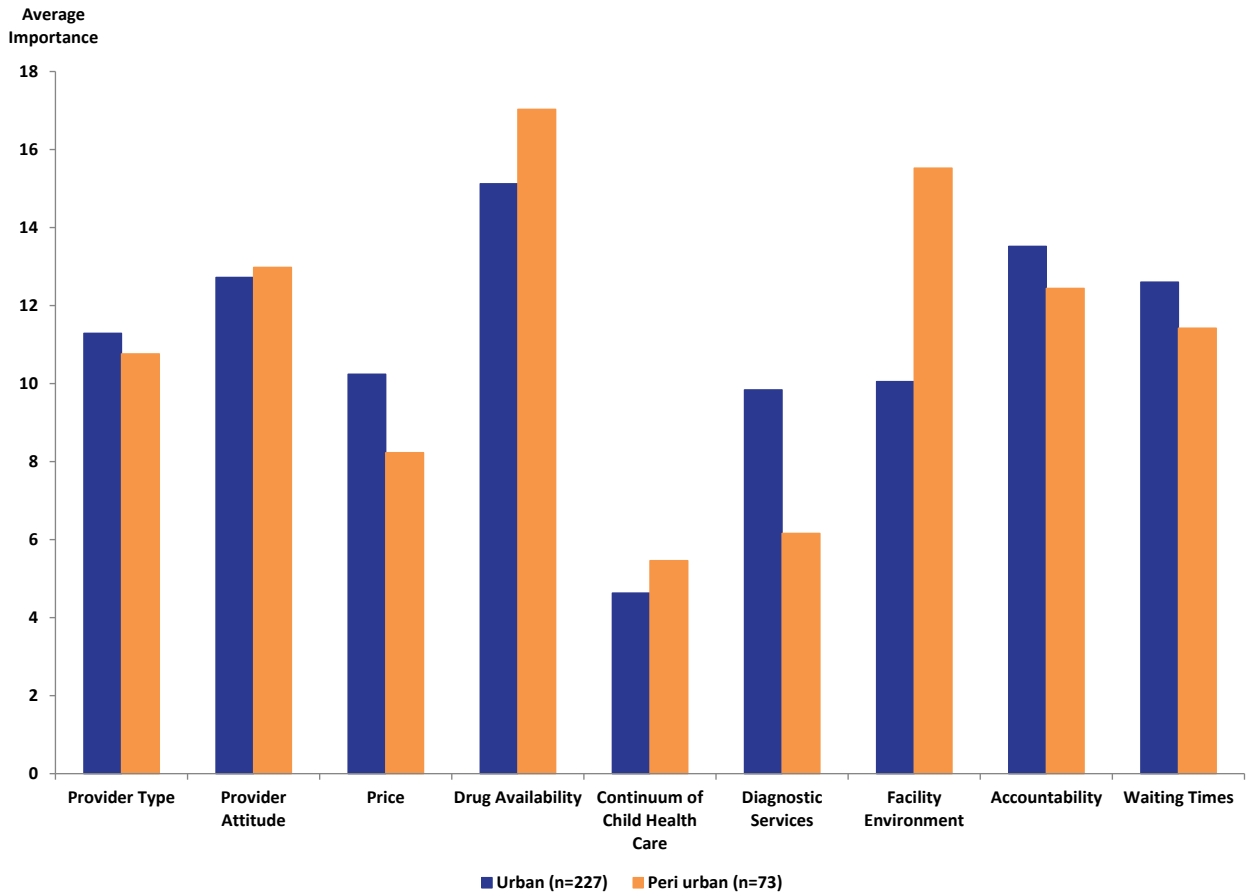


Figure 23 shows there also was little difference in attribute importance by location although there was some variation between urban and peri-urban preferences for some attributes (diagnostic services and facility environment).

Figure 22: Respondent preference/utilities for child health services by urban/peri-urban location



To repeat, in general there is little evidence to suggest that behaviors or preferences differ greatly across SES groups or locations. Instead, the data suggest that differences in behaviors and preferences arise according to the service in question. This is an important finding for NHSDP, and may be contradictory to what is commonly understood about the SES groups and their health seeking behavior.

One reason to review results by SES is to determine whether or not there is a relationship between the use of care and fees across SES group. The quantitative findings from the ancillary survey in which respondents were asked to state what they paid for their most recent ANC, delivery, or child care service suggests that the average cost of health care for the poor (n=58) for pregnancy-related maternal health care had been 2,671 Taka whereas for the non-poor (n=57) it was 1,839 Taka (Table 10). In the case of delivery for POP (n=43) and non-poor (n=35), it was 12,267 Taka and 11,274 Taka, respectively. These results indicate similar payments for services across SES categories, meaning that POP do not appear to be paying much less than the poor or the non-poor regardless of service, in fact, they appear to pay more in the case of delivery services.

Table 10: Respondent's given cost of recent health care visit

SES	Number	Mean (Taka)	95% Confidence Interval
ANC			
POP	58	2,671	(1633 - 3708)
Poor	152	2,506	(1376 - 3636)
Non-poor	57	1,839	(721 - 2956)
Missing	8		
Delivery services			
POP	43	12,267	(9,690 - 14,844)
Poor	104	9,725	(7,322 -12,128)
Non-poor	35	11,274	(7,138-15,409)
Missing	6		
Child services			
POP	64	863	(354-1371)
Poor	162	1,134	(745-1523)
Non-poor	48	1,701	(760-2640)
Missing	15		

4. DISCUSSION

This chapter will discuss study findings in term of the study's aims: recall that the study provides qualitative and quantitative evidence on patient preferences that NHSDP can use to:

1. Support the decision-making process around the design of the interventions aimed at increasing patient utilization of Smiling Sun clinics, and
2. Help determine which interventions are most likely to increase the utilization and therefore should be prioritized.

Assuming that specific interventions can affect the characteristics (such as provider type or availability of drugs) of Smiling Sun facilities, then determining which interventions should be implemented requires us to understand more about how households decide which health facilities to visit and which characteristics play a role in households' choices.

4.1 NHSDP's client population behaviors and knowledge

Clients' health seeking behavior and knowledge about Smiling Sun facilities as indicated by these results show promising opportunities for the network. The high awareness and positive view of the Smiling Sun network, coupled with the significant use of ANC and immunization services, suggests that the population studied should respond well to messaging that increases their awareness of the availability of additional services, in particular, child health services. Furthermore, the high use of Smiling Sun facilities for ANC and immunization presents an opportunity to provide this messaging. That said, a slightly different approach to 'capture' might be needed for each client group since ANC is typically onsite at a facility but immunization is likely via outreach programs, making it necessary to link these programs to actual Smiling Sun facilities in the minds of clients.

An earlier HFG analysis of previous Smiling Sun program survey data points to limitations for the interpretation of the results of this DCE study.[9] The 2014 analysis found differences in health seeking behavior between rural and urban settings and across wealth quintiles. For example, 60–90 percent of rural women across all quintiles do not have assisted deliveries while the range among urban women is 20–80 percent, implying that slightly more urban women have assisted deliveries. Because this DCE study covers only an urban and peri-urban population, its results, in particular the price attribute, may not be generalizable to rural populations. In particular, the earlier analysis showed that ANC and immunization use is lower in rural areas.

4.2 Relating DCE findings to current NHSDP initiatives

The Smiling Sun network already is planning and implementing several initiatives to strengthen its services, but the findings from the DCE study allow us to view these initiatives in terms of how specifically to increase utilization based upon the preferences of potential clients and how to prioritize and/or modify the proposed initiatives.

[9] Benjamin Johns. February 2014. Analysis of Smiling Sun Franchise Program Survey Data to Inform Decision Making for the NGO Health Service Delivery Project. Bethesda, MD: Health Finance and Governance Project, Abt Associates Inc.

4.2.1 Availability and promotion of brand drugs

NHSDP clinics have recently contracted with 12 pharmaceutical companies with a view to strengthen NHSDP's supply chain so that the companies' brand-name drugs are always available in NHSDP facilities, and at a competitive price. The study findings suggest two important ways to leverage these contracts to increase utilization of the facilities. First, the study shows that clients use private formal and informal private providers for child health curative services (not for immunization/prevention), including brand-name drugs. It is likely that with the contracts for drugs, Smiling Sun clients will be able to get the same drugs at lower prices at Smiling Sun facilities, making the facilities more attractive. Second, the DCE results show that clients have a strong preference for "well-known" brands. Smiling Sun providers noted at the results workshop that they should learn about clients' preferences for specific brands, for example, "Napa" or "Fast" for fever. A well-targeted campaign to educate potential clients on the consistent availability and pricing of popular drugs, particularly for child services, could have a large impact on utilization of Smiling Sun facilities.

4.2.2 One Call: Impact on provider attitude and care continuum

The majority of Smiling Sun facilities are vital ones, without the capacity to provide delivery services, and equipping them to do so would take a long-term and resource-intensive effort. Therefore, to facilitate the best possible services from the vital clinics and to ensure their ANC clients deliver at another facility that does have the capacity, Smiling Sun facilities are implementing the "One Call" referral initiative to maintain a connection with and provide information to these women. NHSDP facilities provide to the pregnant women a card listing essential information (mobile number of the contact person and ambulance service, etc.) about the facility where she can obtain delivery services. Some also provide a referral slip, which supports the client's introduction to the delivery facility. Under One Call, Smiling Sun facility staff call the women a few days before their due date to check in with them, and remind them of the delivery facility information in case they no longer have the card.

Provider attitude and the continuum of care are two characteristics that clients value highly according to the DCE. One Call has the potential to leverage these findings into increased utilization. If the continuum of care includes a client's return to Smiling Sun for PNC, then increasing One Call to perhaps Two Calls, the second to remind a mother to bring herself and her child in for PNC, immunization, and so forth, could help women and children receive the full package of recommended care. These calls could 'initiate a relationship' with the client, as opposed to having the client's experience be just 'a series of visits.' Thus return visits might be thought of as being made to a team that cares about the client even between visits – which might be considered part of a positive provider attitude. The calls also are an opportunity to market child care services by providing information on signs and symptoms of common childhood conditions and reminding clients about the availability of services and drugs (possibly at discounted prices) for these conditions.

4.2.3 Accountability: Phone lines for making complaints

Clients chose accountability in the form of a facility having phone lines available for making inquiries and voicing complaints and concerns as a key attribute for selecting a facility for child health. Interestingly, at the results workshop, NGO program directors felt that the suggestion boxes that are available at every health facility could serve this purpose. However, clinic managers and service promoters strongly supported the phone lines, which allow patients to get an immediate response and make them feel they have been 'heard.' Like One Call, it is an opportunity for interacting with clients and exchanging information. In contrast, a box requires that they be able to write, delays the response, and indeed does not guarantee that the complaint will be received and addressed.

4.2.4 Fee schedule adjustments/SES

The DCE study may have been limited by the focus on urban populations and use of the 2014 fee schedule. Nonetheless, its findings suggest that a fee schedule adjustment is required for several reasons:

- Households across all SES use private providers, formal and informal, for child services. These providers charge for their services. There was little awareness of the availability of child services at the lower-priced Smiling Sun clinics.
- At the results workshop, it was noted that the low prices used in the survey may have resulted in an under-valuation of price as a preference; several NGOs pointed out that the prices were not feasible for delivering sustainable services.
- The quantitative data on costs showed little difference in the reported amount paid at the last service visit across SES groups and showed that this population values health care and is willing to pay for it when they are able to.

Because NHSDP has the mandate to provide 40 percent of its service to clients classified as poor or poorest of the poor, SES classification is an important concern. NHSDP has revised the classification schedule and will introduce it to the clinics in the near future. Currently the classifications are:

- ***LA card*** for the POP
- ***Health benefit card*** for the poor
- ***Family care card*** for able-to-pay clients

It will be important to balance this mandate with the reality that, for network facilities to be financially sustainable, they must earn revenue. Just over 50 percent of the peri-urban respondents and 90 percent of the urban ones came from households that were classified by the NHSDP facility as being poor/ POP.

4.3 Issues identified for further study

Several areas might benefit from additional study.

4.3.1 Provider attitude

The DCE results suggest that addressing the attitude of existing health care providers and staff could increase NHSDP facility utilization, even in the absence of higher-skilled providers such as doctors (relative to other attributes). This is important to know given the challenge of increasing the availability of doctors at primary care institutions. However, provider attitude is a broad concept and more research is needed to determine how to effectively improve provider attitude (e.g., using pay-for-performance initiatives). Developing a comprehensive approach to this issue is needed – it should consider, for example, the value of phone calls and effective phone call behavior for the target population, the length of time spent in patient consultations, and other factors such as appearance, mode of greetings, and conversing in a 'non-condescending' or respectful manner.

4.3.2 Pricing

Pricing appears to be a concern both for the sustainability of provider services as well as for its impact on access. Although the limitations of this study have been noted, the study suggests that pricing decisions may need to take greater consideration of informal private provider-patient behavior, particularly for child services – this population is willing and able to go to informal providers and they pay to do so. The DCE finding of no preference for free services rather than being due to the low prices used in the DCE survey may actually corroborate the focus group findings that urban and peri-urban populations are willing and able to pay for treatment when they 'mentally adjust' for quality. Some combination of service fee/discounted drug pricing, such that these are presented as one single price, may be attractive to potential clients as it would appear similar to what they are familiar with in the informal private sector.

4.4 DCE methodology contribution

In Tanzania, a study of patient preferences when choosing a facility in which to deliver found that respectful provider attitude and drug availability were more important to the study population than were characteristics such as cleanliness, distance, and cost. The current DCE study had similar results. It is interesting that providers who feel they know their clientele well were asked to rank the characteristics that would be studied; as shown in the results, their rankings were quite different from the rankings obtained by the DCE results. In other words, the DCE results were consistent with at least one study from the literature but not with providers' perceptions. Of course, the ranking methods were completely different – the providers were asked to provide a straight ranking from most to least important, not to answer a DCE survey like the clients did. Nevertheless, this finding shows that providers on their own would make decisions based on their perceptions; decisions that would be very different from those recommended here based on the DCE study results.

5. RECOMMENDATIONS

Based on the findings and discussion presented in this report, the following recommendations are put forth:

- **Brand drugs pricing/advertising:** This client population expressed a very strong preference for branded drugs at a time when NHSDP is contracting for drug procurement and competitive pricing. This presents an opportunity for an intervention that increases the client population's knowledge about the availability of brand drugs, which survey results suggest could in turn increase utilization of child health services. More work should be done around pricing the drugs and then marketing them to capture clients seeking child health curative services at informal providers.
- **ANC/immunization link to child health**: Smiling Sun ANC and immunization services are well known to this target population but this knowledge doesn't translate into curative child health service utilization, an important missed opportunity for NHSDP.
- **Provider attitude:** NGOs need a more nuanced understanding of what is a 'positive provider' attitude beyond the 'rude/polite' definition used in this study. A deeper understanding of what clients mean in this regard would help NHSDP to leverage its existing NHSDP initiatives, like One Call. Contact, even by phone, is seen by clients as positive and thus it incentivizes ANC clients to return to their NHSDP facility and to bring children for services – even if their babies were delivered elsewhere.
- **Pricing:** While the fee schedule is under discussion, the May 2014 schedule as it was in May 2014 does not appear to be sustainable. More detailed costing may be required to balance what is sustainable against dis-incentivizing utilization. Closer coordination of the fee schedule with providers, especially those in locations with high numbers of clients who qualify for subsidized services, is needed. It may be difficult to achieve a schedule that brings financial sustainability and unnecessary if patients are actually going elsewhere (such as informal providers) and paying for services.

SES classification: The results from the focus groups and the DCE survey do not show that free services are highly desirable among the urban and peri-urban population. If this population differs greatly from a rural population, it will not be possible to apply a classification of poor/POP to both rural and urban populations.

6. CONCLUSION

This DCE was conducted to provide evidence and guidance on the design and prioritization of interventions that NGOs in the NHSDP network could use to increase utilization of their facilities. The study identified two main attributes that respondents find highly desirable – brand drug availability and polite providers – that NHSDP could design interventions around in the short term (while issues such as a continuum of care for maternal health could be addressed in the longer term). The study also confirmed the hypothesis in the literature and put forward by experts in Bangladesh about the clients' desire for accessing female doctors and a continuum of care from basic to more complicated services. Finally, the study demonstrated that the DCE approach can be used effectively to identify patient preferences in urban and peri-urban Bangladeshi populations. The non-DCE findings of the study identified a very low awareness of the child health services that NHSDP can provide, which when considered with the high awareness and use of maternal services represents a 'cascade' loss in which pregnant women who know and use Smiling Sun for ANC do not bring their babies back for PNC or child care.

Overall the study provides information that should help NGO health facilities design and prioritize their planned interventions. In addition, these results add to the small body of existing literature on this population's preferences and therefore may be useful to other providers of maternal and child services in Bangladesh

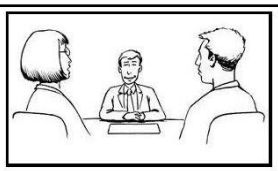
ANNEX A: PICTORIAL GUIDE FOR DCE CHOICE SET SURVEY TOOL

Provider Type (স্বাস্থ্য সেবাদানকারীর ধরন)	
Paramedic (প্যারামেডিক)	
Nurse (সেবিকা)	
Female Doctor (মহিলা ডাক্তার)	
Male Doctor (পুরুষ ডাক্তার)	
Drug availability (ঔষধের সহজলভ্যতা)	
Brand drugs available (ভাল কোম্পানীর ঔষধ)	
Non-brand drugs available (যে কোন কোম্পানীর ঔষধ)	
Uncertain availability drugs or no drugs (ঔষধ পাবার অনিশ্চয়তা)	

Continuum of Maternal Care (মাতৃকালীন পরিপূর্ণ সেবা ব্যবস্থা)	
Delivery service not available (ডেলিভারী সেবা নাই)	
Up to normal delivery services available (including ANC, and PNC) (নরমাল ডেলিভারী সেবা (ANC এবং PNC সেবা সহ)	
Up to normal delivery services available (including ANC, and PNC and referral (নরমাল ডেলিভারী সেবা (ANC, PNC এবং প্রয়োজনে অন্য কোথাও পাঠানোর ব্যবস্থা আছে)	
Up to normal delivery services available (including ANC, and PNC) and ambulance services for referral (নরমাল ডেলিভারী সেবা (ANC, PNC এবং প্রয়োজনে অন্য কোথাও পাঠানোর জন্য এ্যাম্বুলেন্স সার্ভিস)	
Up to C-section delivery services available (including ANC, PNC and normal delivery) (সি-সেকশন ডেলিভারী সেবা ব্যবস্থা (ANC, PNC এবং নরমাল ডেলিভারী সেবা সহ)	
Continuum of Child Care (সব ধরনের শিশু স্বাস্থ্য সেবা ব্যবস্থা)	
Availability of child health services (সব ধরনের শিশু স্বাস্থ্য সেবা ব্যবস্থা)	
Availability of child health services with ambulance referral (সব ধরনের শিশু স্বাস্থ্য সেবা ব্যবস্থা এবং প্রয়োজনে অন্য কোথাও পাঠানোর জন্য এ্যাম্বুলেন্স সার্ভিস)	

Waiting times (অপেক্ষার সময়)	
Less than 1 hour (এক ঘন্টার কম)	
Between 1 and 2 hours (এক থেকে দুই ঘন্টা)	
More than 2 hours (দুই ঘন্টার বেশি)	
Diagnostic Service (পরীক্ষা নিরীক্ষার ব্যবস্থা)	
Available (পর্যাপ্ত আছে)	
Not available (পর্যাপ্ত নাই)	
Price (সেবার মূল্য)	
Child visit at 15T (শিশু স্বাস্থ্য সেবা: ১৫ টাকা)	
Child health at 30T (শিশু স্বাস্থ্য সেবা: ৩০ টাকা)	

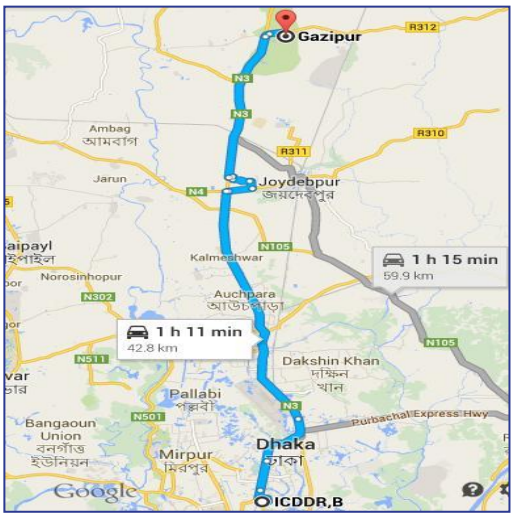
Child health at 60T (শিশু স্বাস্থ্য সেবা: ৬০ টাকা)	
Normal delivery at 600T (নরমাল ডেলিভরী: ৬০০ টাকা)	
Normal delivery at 800T (নরমাল ডেলিভরী: ৮০০ টাকা)	
Provider Attitude (স্বাস্থ্য সেবাদানকারীর আচরণ/ব্যবহার)	
Rude/inattentive (খারাপ ব্যবহার/কর্কশ ভাবে কথা বলা/অমনোযোগী)	
Polite/attentive (ভদ্র/ভদ্র এবং মনোযোগী)	
Accountability (জবাবদিহিতা)	
No option available for making complaints (অভিযোগ করার কোন সুযোগ নাই)	
Access to comment box (মতামত বাক্স আছে)	

Identified person to complain to (অভিযোগ করার নির্দিষ্ট লোক আছে)	
Available phone line for making complaints (ফোনের মাধ্যমে অভিযোগ করার সুযোগ আছে)	
Environment (ক্লিনিকের পরিবেশ)	
Not clean (পরিষ্কার পরিচ্ছন্ন না)	
Clean (পরিষ্কার পরিচ্ছন্ন এবং স্বাস্থ্যসম্মত)	

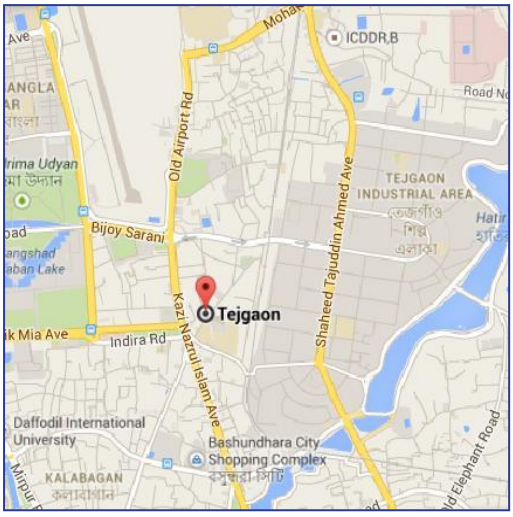
ANNEX B: SMILING SUN FACILITY/POPULATION CATCHMENT AREA MAPS

Harirampur

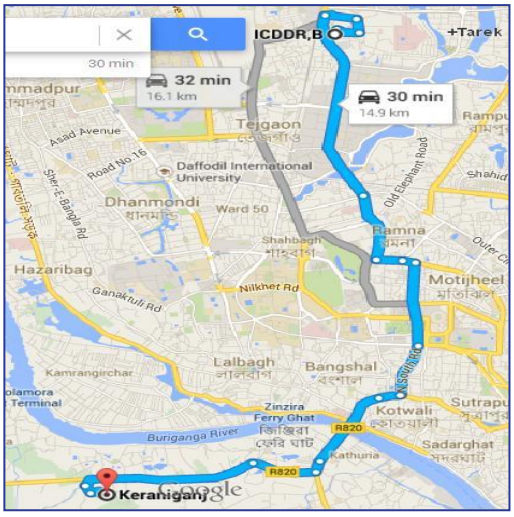
Gazipur



Tejgaon



Keraniganj



ANNEX C: RESPONDENT HOUSEHOLDS' CHARACTERISTICS (DETAIL)

Annex C: Respondent Households' Characersistics (N=601)

		Mean	Std. Err.
Age		35.78	11.0
HH size		10.14	2.2
Number of children in each HH		2.66	1.1
Area		**Raw Count**	**Percentage**
	Urban	453	75.4
	Peri-Urban	148	24.6
Clinic catchment area			
	Urban		
	Bably	42	7.0
	Chandona	46	7.7
	Chatar Bazar	37	6.2
	Dhirashram	44	7.3
	Kunipara	41	6.8
	Middle Begunbari	46	7.7
	Middle Kunipara	42	7.0
	Rahapara	31	5.2
	South Begunbari	22	3.7
	Tek Vararia	39	6.5
	Vararul	20	3.3
	Vurulia	43	7.2
	Peri-Urban		
	Bakipur	8	1.3
	Bondo dakpara	54	9.0
	Karoria	4	0.7
	Kolapara	5	0.8
	Machaine	20	3.3
	Naodubi	11	1.8
	Shuvadda	46	7.7
Household head gender			
	Male	579	96.3
	Female	22	3.7
Marriage			
	Unmarried	2	0.3
	Married	585	97.3
	Widowed	10	1.7
	Divorced	0	0
	Separated	4	0.7
Anyone in your household got sick in the last 15 days			
	Yes	83	13.8
	No	518	86.2

Area		Raw Count	Percentage
Household members usually live together			
	Yes	586	97.5
	No	15	2.5
Occupation			
	Service labor	162	27.0
	Business	138	23.0
	Bus/tempo/scooter/driver/helper	59	9.8
	Rickshaw/van/boatman	51	8.5
	Small business	50	8.3
	Wood worker/foreman	48	8.0
	Day laborer	36	6.0
	Farmer(own land)	18	3.0
	Household activity	12	2.0
	Disabled/not applicable	11	1.8
	Unemployed	5	0.8
	Farmer (other land)	4	0.7
	Other	4	0.7
	Hotel/restaurant worker	2	0.3
	Maid server	1	0.2
Educational qualification			
	Can read and write letter	453	75.4
	Can not	148	24.6
Educational level			
	No education	148	24.3
	Primary Level (years 1 to 4)	51	8.36
	Junior Level (years 5 to 8)	258	42.30
	Secondary Level (years 9 to 10)	120	19.67
	Higher Secondary Level (years 11 and 12)	21	3.44
	Tertiary Level	8	1.31

ANNEX D: HOUSEHOLD CHARACTERISTICS BY NGO SES CLASSIFICATION

Annex D1: NHSDP Classification (N=583)

	Freq.	Percent	Cum.
Poorest of the poor	126	21.61	21.61
Poor	341	58.49	80.1
Non-Poor	116	19.9	100
Total	583	100	

Note: NGO POP/P/NP classifications were missing for some households

Annex D2: NHSDP Classification (N=583)

		POP (%)	POOR (%)	NON-POOR (%)
Age (MEAN)		35.95	34.95	38.15
Area	Urban	88.89	82.70	35.34
	Peri-urban	11.11	17.30	64.66
Clinic catchment area				
	Urban			
	Bably	0.00	10.85	4.31
	Chandona	12.70	8.21	0.00
	Chatar Bazar	16.67	2.64	3.45
	Dhirashram	11.11	7.33	0.86
	Kunipara	0.79	9.97	5.17
	Middle Begunbari	1.59	12.32	1.72
	Middle Kunipara	0.79	9.38	7.76
	Rahapara	8.73	5.57	0.00
	South Begunbari	0.00	5.57	2.59
	Tek Vararia	13.49	4.99	1.72
	Vararul	10.32	1.47	0.86
	Vurulia	12.70	4.40	6.90
	Peri-Urban			
	Bakipur	0.79	1.17	2.59
	Bondo dakpara	0.00	6.16	28.45
	Karoria	2.38	0.00	0.86
	Kolapara	0.00	0.29	3.45
	Machaine	5.56	2.05	5.17
	Naodubi	1.59	1.47	3.45
	Shuvadda	0.79	6.16	20.69
Household head gender				
	Male	97.62	95.89	95.69
	Female	2.38	4.11	4.31
Marriage				
	Unmarried	0.00	0.29	0.86
	Married	98.41	96.77	97.41
	Widowed	0.79	2.05	1.72
	Separated	0.79	0.88	0.00

		POP (%)	POOR (%)	NON-POOR (%)
Anyone in your household got sick in the last 15 days				
	Yes	18.25	12.9	9.48
	No	82	87.1	90.52
Occupation				
	Business	23.81	22.29	25.86
	Service labor	23.02	29.03	26.72
	Bus/tempo/scooter/driver	11.9	9.38	6.03
	Small business	11.9	7.62	7.76
	Wood worker/foreman	7.14	7.92	9.48
	Rickshaw/van/boatman	6.35	9.38	6.9
	Day laborer	4.76	6.45	5.17
	Farmer (self owned)	3.17	1.76	6.03
	Disabled/not applicable	2.38	1.47	1.72
	Other	2.38	0.29	0
	Farmer (not self owned)	1.59	0.29	0.86
	Hotel/restaurant work	0.79	0.29	0
	Household activity	0.79	2.35	2.59
	Maid server	0	0.29	0
	Unemployed	0	1.17	0.86
Educational qualification				
	Can read and write letter	71.43	76.25	76.72
	Can not	28.57	23.75	23.28

Note: NGO POP/P/NP classifications were missing for some households

ANNEX E: PERCEPTIONS OF SMILING SUN

Annex E: Perception, understanding, and experience regarding NHSDP

	Freq.	Percent
Have you ever heard of Smiling Sun Health Clinics (n=601)		
Yes	566	94.18%
No	35	5.82%
In general which economic group come to Smiling Sun Hospital/Clinic for health care services? (n=566)		
Upper class	4	1%
Middle class	102	18%
Lower class	138	24%
POP	74	13%
All class	291	51%
What comes to your mind when you think or see of the Smiling Sun? (n=566)		
Good quality related	142	25%
Bad quality related	3	1%
Reasonable price/value related	22	4%
High price /value related	1	0%
Liking related	417	74%
Disliking related	8	1%
Good behavior	66	12%
Bad behavior	6	1%
Cleanliness	54	10%
Uncleanliness	1	0%
Promotional activities related	10	2%
All types of services available	20	4%
Other-No special feelings	6	1%
Are you aware of any Smiling Sun clinics in your area? (n=566)		
Yes	473	83.57%
No	64	11.31%
Don't know	29	5.12%
What things do you like about the Smiling Sun Clinic? (n=566)		
Good behavior/attitude	191	34%
Good quality of service	174	31%
Environment is good	134	24%
No comments	45	8%
Maternal and child health care	45	8%
Available of ANC, PNC check-up or family planning	28	5%
Free/low cost service	27	5%
Skilled doctor/worker	18	3%
CSPs should visit door to door	16	3%
Delivery service is good	13	2%
Female doctors and nurses and field worker	12	2%
Advising and consultation	10	2%
Good doctor	8	1%
EPI	6	1%
Information about reproductive Health	5	1%
Medicine available	4	1%
Pathological test is good	4	1%
Availability of medicine	3	1%

	Freq.	Percent
Diagnostic service is good	3	1%
What things do you dislike about the Smiling Sun Clinic? (n=566)		
Wait long time	34	6%
Cost is high	21	4%
Behavior/attitude is not good	21	4%
Clinic area is limited	11	2%
Bad quality of service	4	1%
Environment is not clean	5	1%
Diagnostic service is not good	2	0%
Environment is not so good	2	0%
Male doctor is not helpful	2	0%
Service is not available nearby	2	0%
Staffs are not sufficient	2	0%
All health services are not available	1	0%
Charges money for vaccination	1	0%
Doctor delay to come	1	0%
Doctor (Child) are not good	1	0%
Doctors are not attentive	1	0%
What are the recommendations to improve the facilities of Smiling Sun Clinic?(n=566)		
No comments	184	33%
Number of trained doctor/specialist need to increase	97	17%
Free of cost service (or medicine) needed/reduce the cost	48	8%
Larger space needed for waiting room	38	7%
Improve quality of health service	36	6%
C-section delivery service needed	26	5%
Comprehensive service needed	17	3%
Need to improve behavior	17	3%
Need to provide good quality of drugs	15	3%
General delivery service needed	10	2%
Diagnostic service needed	10	2%
Number of nurses need to be increased	14	2%
Need to improve diagnostic service	5	1%
Need to more neat and clean	7	1%
Ambulance service needed	8	1%
Clinic need to be increased	3	1%
Female doctor needed	6	1%
Improve laboratory test	5	1%
Need clinic nearby	5	1%
Number of trained medical staff need to increase	4	1%
Provide 24 hour service	4	1%
Waiting time needs to be minimum	3	1%
Need comments box	2	0%
Should provide more medicine for free	2	0%
Treatment is not efficient	2	0%

ANNEX F: MATERNAL HEALTH MEAN IMPORTANCES BY SES

Annex F: Maternal Health Service – Mean Importances by SES

	Mean Overall (N=300)		Non-poor (N=55)		Poor (N=177)		Poorest (N=61)	
	Mean Imp	SD	Mean Imp	SD	Mean Imp	SD	Mean Imp	SD
Provider Type	10.87	4.37	12.69	5.43	13.66	4.90	9.13	3.00
Provider Attitude	11.10	6.52	11.50	8.35	10.61	6.69	10.02	5.40
Price	8.09	4.39	9.47	3.90	8.34	4.31	9.67	4.73
Continuum of Maternal Health Care	20.56	6.02	18.61	4.11	20.75	8.11	16.44	3.86
Drug Availability	12.33	5.35	10.51	5.85	10.11	4.29	14.28	5.27
Diagnostic Services	7.57	3.88	4.65	3.15	6.15	3.74	5.24	3.37
Facility Environment	7.56	4.79	7.18	4.44	9.10	6.03	7.00	4.35
Accountability	10.83	4.16	16.10	6.39	12.41	4.51	18.12	6.49
Waiting Times	11.10	5.66	9.29	5.07	8.87	4.01	10.10	4.75

Note: NHSDP classifications were missing from some respondents

ANNEX G: CHILD HEALTH MEAN IMPORTANCES BY SES

Annex G: Children Health Service – Mean Importances by SES

	Mean Overall (N=301)		Non-poor (N=60)		Poor (N=164)		Poorest (N=65)	
	Mean Imp	SD	Mean Imp	SD	Mean Imp	SD	Mean Imp	SD
Provider Type	11.02	4.74	9.92	4.30	12.37	4.86	9.71	5.07
Provider Attitude	13.16	7.46	10.96	7.15	13.49	6.51	11.65	8.04
Price	9.45	4.02	9.63	4.67	9.49	4.14	10.00	4.47
Drug Availability	15.57	8.80	15.49	7.47	15.00	7.92	14.65	9.03
Continuum of Child Health Care	4.47	3.12	5.71	3.87	4.04	3.12	5.74	3.73
Diagnostic Services	9.07	5.77	7.32	4.84	8.74	5.30	9.54	5.70
Facility Environment	11.04	6.59	12.44	7.88	10.98	5.66	9.97	5.54
Accountability	14.08	5.82	13.08	4.98	13.99	6.33	14.22	6.12
Waiting Times	12.13	5.07	15.45	5.41	11.91	5.58	14.53	4.78

Note: NHSDP classifications were missing from some respondents

ANNEX H: MATERNAL HEALTH HB UTILITIES BY SES

Annex H: Maternal Health Service – CBC/Hierarchical Bayes Utilities by SES

	Mean Overall (N=300)		Non-poor (N=55)		Poor (N=177)		Poorest (N=61)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Provider Type								
Paramedic	-6.69	38.13	-20.49	25.52	-28.18	42.42	-5.62	31.59
Nurse	-22.37	33.84	-20.89	33.17	-28.74	51.27	-14.16	32.18
Female Doctor	29.64	38.45	7.50	59.12	31.10	30.54	7.08	40.70
Male Doctor	-0.58	37.87	33.88	46.63	25.82	42.67	12.69	20.39
Provider Attitude								
Rude	-47.70	32.89	-41.69	48.68	-42.70	36.93	-43.52	27.06
Polite	47.70	32.89	41.69	48.68	42.70	36.93	43.52	27.06
Price								
Free Service	-2.07	36.81	-13.38	37.00	-8.99	35.24	-10.06	39.87
Normal Delivery 600 BDT	1.26	31.26	-3.58	31.84	-10.98	30.94	8.11	37.08
Normal Delivery 800 BDT	0.81	37.53	16.96	42.57	19.97	33.11	1.94	44.22
Continuum of Maternal Health Care								
Delivery Service Not Available	-92.46	65.58	-40.79	75.91	-92.04	76.51	-84.96	29.45
Up to Normal Delivery Service Available (Including ANC and PNC)	-10.64	42.32	-22.42	40.28	-0.64	45.16	1.47	35.49
Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	17.75	41.37	-4.77	49.74	28.16	36.41	42.40	31.07
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	30.84	33.96	32.17	38.19	27.11	45.50	12.12	29.75
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	54.52	39.48	35.81	60.22	37.41	48.30	28.98	24.41
Drug Availability								
Brand Drugs Available	55.08	39.35	27.46	42.87	39.74	35.11	69.92	31.83
Non-Brand Drugs Available	-33.78	30.48	-39.15	38.04	-25.75	28.47	-43.90	28.53
Uncertain Availability of Drugs or No Drugs	-21.29	32.85	11.69	25.72	-13.99	30.86	-26.02	32.47
Diagnostic Services								
Available	29.22	24.75	3.13	25.23	20.18	25.37	20.39	19.30
Not Available	-29.22	24.75	-3.13	25.23	-20.18	25.37	-20.39	19.30
Facility Environment								
Not Clean	-25.77	30.97	-25.88	27.91	-31.08	38.07	-27.88	24.53
Clean	25.77	30.97	25.88	27.91	31.08	38.07	27.88	24.53

	Mean Overall (N=300)		Non-poor (N=55)		Poor (N=177)		Poorest (N=61)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Accountability								
No Option Available for Making Complains	-18.75	41.25	-35.48	86.05	-23.06	42.26	-62.95	51.47
Access to Comment Box	7.09	38.81	9.73	25.21	-13.18	43.25	31.74	42.00
Identified Person to Complain to	1.37	34.47	15.21	58.91	29.87	43.32	31.03	71.42
Available Phone Line for Making complaints	10.30	40.62	10.54	34.60	6.36	38.26	0.19	45.48
Waiting Times								
Less than 1 Hour	5.18	49.36	8.88	26.37	6.83	34.02	14.39	43.13
Between 1 and 2 Hours	-6.80	41.81	-36.24	28.74	7.15	34.00	16.76	21.36
More than 2 Hours	1.62	52.38	27.36	35.71	-13.98	40.04	-31.15	40.80
None	8.90	87.60	-11.73	87.12	-0.05	78.60	25.37	69.83

Note: NHSDP classifications were missing from some respondents

ANNEX I: MATERNAL HEALTH LOGIT UTILITIES

Annex I: CBC/Logit Utilities – Maternal Health

	Overall (N=300)		Non-Poor (N=55)			Poor (N=177)			Poorest (N=61)			Urban (226)			Peri-Urban (73)			
	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat
Provider Type																		
Paramedic	-0.07	0.05	-1.31	0.00	0.12	0.03	-0.18	0.07	-2.74	-0.01	0.12	-0.09	-0.16	0.06	-2.60	0.28	0.09	3.01
Nurse	-0.15	0.05	-2.96	-0.27	0.12	-2.24	-0.23	0.07	-3.46	-0.10	0.12	-0.88	-0.24	0.06	-4.04	-0.19	0.10	-2.02
Female Doctor	0.22	0.05	4.64	0.07	0.12	0.55	0.24	0.06	3.89	0.07	0.11	0.66	0.25	0.06	4.53	-0.02	0.10	-0.18
Male Doctor	-0.01	0.05	-0.14	0.20	0.10	1.97	0.17	0.06	2.79	0.04	0.12	0.33	0.14	0.06	2.56	-0.06	0.09	-0.73
Provider Attitude																		
Rude	-0.34	0.03	-12.47	-0.28	0.06	-4.41	-0.31	0.03	-9.15	-0.39	0.06	-6.16	-0.33	0.03	-10.61	0.00	0.05	0.07
Polite	0.34	0.03	12.47	0.28	0.06	4.41	0.31	0.03	9.15	0.39	0.06	6.16	0.33	0.03	10.61	0.00	0.05	-0.07
Price																		
Free Service	-0.05	0.04	-1.47	-0.23	0.09	-2.60	-0.08	0.05	-1.71	0.04	0.09	0.43	-0.06	0.04	-1.41	0.08	0.07	1.19
Normal Delivery 600 BDT	0.04	0.04	0.99	-0.03	0.08	-0.33	-0.04	0.05	-0.88	0.02	0.09	0.28	-0.06	0.04	-1.42	-0.15	0.07	-2.13
Normal Delivery 800 BDT	0.02	0.04	0.51	0.26	0.08	3.16	0.12	0.05	2.75	-0.06	0.08	-0.73	0.12	0.04	2.99	0.07	0.07	0.96
Continuum of Maternal Health Care																		
Delivery Service Not Available	-0.71	0.06	-10.95	-0.19	0.14	-1.38	-0.71	0.08	-8.50	-1.06	0.16	-6.45	-0.73	0.07	-9.81	0.19	0.10	1.85
Up to Normal Delivery Service Available (Including ANC and PNC)	-0.06	0.05	-1.08	-0.12	0.13	-0.94	0.02	0.07	0.24	0.03	0.12	0.26	0.01	0.06	0.09	-0.09	0.10	-0.84
Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0.05	0.05	0.96	-0.17	0.13	-1.35	0.10	0.07	1.43	0.42	0.13	3.32	0.15	0.06	2.45	-0.28	0.11	-2.55
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.27	0.05	5.11	0.07	0.13	0.50	0.25	0.07	3.73	0.16	0.13	1.28	0.23	0.06	3.82	-0.06	0.10	-0.62
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.45	0.06	7.53	0.41	0.13	3.10	0.34	0.08	4.49	0.45	0.14	3.08	0.34	0.07	4.99	0.23	0.11	2.06

	Overall (N=300)		Non-Poor (N=55)			Poor (N=177)			Poorest (N=61)			Urban (226)			Peri-Urban (73)			
	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat
Drug Availability																		
Brand Drugs Available	0.46	0.04	12.77	0.31	0.08	3.72	0.37	0.05	8.09	0.77	0.09	8.69	0.51	0.04	12.18	0.16	0.07	2.30
Non-Brand Drugs Available	-0.28	0.04	-7.48	-0.38	0.09	-4.24	-0.27	0.05	-5.51	-0.52	0.09	-5.60	-0.32	0.04	-7.22	0.01	0.07	0.08
Uncertain Availability of Drugs or No Drugs	-0.18	0.04	-4.74	0.07	0.09	0.86	-0.11	0.05	-2.31	-0.25	0.09	-2.79	-0.20	0.04	-4.56	-0.17	0.07	-2.30
Diagnostic Services																		
Available	0.25	0.03	9.80	0.12	0.06	2.03	0.19	0.03	5.64	0.28	0.06	4.60	0.20	0.03	6.52	0.00	0.05	-0.10
Not Available	-0.25	0.03	-9.80	-0.12	0.06	-2.03	-0.19	0.03	-5.64	-0.28	0.06	-4.60	-0.20	0.03	-6.52	0.00	0.05	0.10
Facility Environment																		
Not Clean	-0.28	0.05	-6.08	-0.38	0.10	-3.61	-0.28	0.06	-4.63	-0.31	0.11	-2.81	-0.29	0.05	-5.31	0.06	0.08	0.77
Clean	0.28	0.05	6.08	0.38	0.10	3.61	0.28	0.06	4.63	0.31	0.11	2.81	0.29	0.05	5.31	-0.06	0.08	-0.77
Accountability																		
No Option Available for Making Complaints	-0.17	0.08	-2.08	-0.10	0.19	-0.54	-0.21	0.10	-1.97	-0.85	0.21	-4.05	-0.34	0.10	-3.52	0.30	0.16	1.90
Access to Comment Box	0.04	0.08	0.47	-0.08	0.21	-0.39	-0.12	0.11	-1.13	0.15	0.19	0.82	0.02	0.09	0.25	0.28	0.16	1.77
Identified Person to Complain to	0.01	0.08	0.11	0.36	0.18	1.99	0.26	0.10	2.62	0.43	0.18	2.39	0.25	0.09	2.83	-0.41	0.18	-2.30
Available Phone Line for Making complaints	0.12	0.08	1.56	-0.17	0.20	-0.87	0.06	0.10	0.62	0.27	0.18	1.47	0.06	0.09	0.70	-0.17	0.15	-1.08
Waiting Times																		
Less than 1 Hour	0.09	0.06	1.37	0.02	0.14	0.16	0.08	0.08	0.94	0.44	0.14	3.05	0.18	0.07	2.56	-0.09	0.12	-0.80
Between 1 and 2 Hours	-0.07	0.06	-1.11	-0.39	0.14	-2.77	-0.01	0.08	-0.18	-0.18	0.16	-1.16	-0.04	0.07	-0.48	-0.15	0.11	-1.28
More than 2 Hours	-0.01	0.06	-0.24	0.37	0.14	2.61	-0.06	0.08	-0.75	-0.25	0.15	-1.68	-0.15	0.08	-1.96	0.24	0.11	2.10
None	-0.32	0.06	-5.79	-0.57	0.14	-4.14	-0.51	0.08	-6.66	-0.14	0.12	-1.16	-0.37	0.06	-5.67	-0.88	0.13	-6.85

Note:

ANNEX J: CHILD HEALTH HB UTILITIES BY SES

Annex J: Children Health Service – CBC/Hierarchical Bayes Utilities by SES

	Mean Overall (N=301)		Non-poor (N=60)		Poor (N=164)		Poorest (N=65)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Provider Type								
Paramedic	-22.32	36.15	-8.47	29.63	-24.51	38.59	-15.88	31.01
Nurse	-16.89	36.24	-18.90	37.91	-18.91	41.59	-13.54	30.03
Female Doctor	20.79	39.45	10.13	42.32	18.67	40.26	28.91	37.74
Male Doctor	18.42	37.41	17.24	27.33	24.75	44.77	0.51	36.93
Provider Attitude								
Rude	-57.41	36.62	-46.54	36.13	-59.90	30.94	-46.19	43.98
Polite	57.41	36.62	46.54	36.13	59.90	30.94	46.19	43.98
Price								
Free Service	-9.03	36.66	-20.07	29.21	-7.59	39.74	-0.13	31.86
Child Visit at 15 BDT	3.21	34.76	27.52	37.97	0.03	36.42	-0.06	35.37
Child Visit at 30 BDT	-2.91	34.00	-3.60	29.73	0.04	34.92	-13.81	39.69
Child Visit at 60 BDT	8.73	37.37	-3.85	33.00	7.52	33.65	14.00	40.80
Drug Availability								
Brand Drugs Available	74.40	54.96	69.43	45.34	71.74	52.65	62.08	67.16
Non-Brand Drugs Available	-40.47	48.61	-34.66	50.07	-36.58	43.76	-37.76	48.13
Uncertain Availability of Drugs or No Drugs	-33.93	26.81	-34.77	36.45	-35.17	29.60	-24.32	33.42
Continuum of Child Health Care								
Availability of Child Health Services	-3.32	24.34	0.86	31.21	-3.78	22.69	-4.93	30.56
Availability of Child Health Services with Ambulance for Referral	3.32	24.34	-0.86	31.21	3.78	22.69	4.93	30.56
Diagnostic Services								
Available	37.84	30.12	21.12	33.54	36.47	28.03	40.44	29.45
Not Available	-37.84	30.12	-21.12	33.54	-36.47	28.03	-40.44	29.45
Facility Environment								
Not Clean	-41.71	40.13	-40.09	53.00	-46.37	30.68	-30.96	41.14
Clean	41.71	40.13	40.09	53.00	46.37	30.68	30.96	41.14
Accountability								
No Option Available for Making Complaints	-41.87	49.91	-21.82	54.45	-30.22	34.11	-22.12	57.68
Access to Comment Box	-6.83	42.86	28.72	35.88	-20.82	51.23	-2.28	41.46
Identified Person to Complain to	9.30	39.01	11.61	37.12	-2.92	35.76	-2.67	59.49
Available Phone Line for Making complaints	39.40	46.45	-18.51	46.40	53.97	46.11	27.07	44.89
Waiting Times								
Less than 1 Hour	32.64	45.16	17.82	46.50	33.71	51.62	39.83	49.10
Between 1 and 2 Hours	9.02	41.47	34.74	53.33	-3.07	45.46	13.89	44.68
More than 2 Hours	-41.66	33.55	-52.56	51.37	-30.63	30.69	-53.72	36.54
None	-8.59	94.80	12.47	65.92	7.38	80.85	11.27	92.17

Note: NHSDP classifications were missing from some respondents

ANNEX K: CHILD HEALTH LOGIT UTILITIES

Annex K: CBC/Logit Utilities – Child Health

	Overall (N=300)			Non-Poor (N=55)			Poor (N=177)			Poorest (N=61)			Urban (226)			Peri-Urban (73)		
	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat
Provider Type																		
Paramedic	-0.15	0.11	-1.37	-0.15	0.11	-1.37	-0.17	0.07	-2.55	-0.12	0.11	-1.15	-0.11	0.06	-1.91	-0.24	0.10	-2.31
Nurse	-0.21	0.11	-1.93	-0.21	0.11	-1.93	-0.19	0.07	-2.93	-0.10	0.10	-0.99	-0.17	0.06	-3.03	-0.22	0.10	-2.15
Female Doctor	0.18	0.10	1.77	0.18	0.10	1.77	0.16	0.06	2.51	0.23	0.10	2.27	0.17	0.05	3.08	0.22	0.10	2.19
Male Doctor	0.17	0.10	1.71	0.17	0.10	1.71	0.20	0.06	3.14	0.00	0.10	-0.05	0.11	0.05	2.02	0.23	0.09	2.53
Provider Attitude																		
Rude	-0.47	0.06	-7.73	-0.47	0.06	-7.73	-0.48	0.04	-12.76	-0.44	0.06	-7.42	-0.42	0.03	-13.42	-0.57	0.06	-9.90
Polite	0.47	0.06	7.73	0.47	0.06	7.73	0.48	0.04	12.76	0.44	0.06	7.42	0.42	0.03	13.42	0.57	0.06	9.90
Price																		
Free Service	-0.20	0.11	-1.76	-0.20	0.11	-1.76	-0.13	0.07	-1.92	-0.06	0.10	-0.58	-0.13	0.06	-2.21	-0.12	0.10	-1.16
Child Visit at 15 BDT	0.25	0.10	2.39	0.25	0.10	2.39	0.07	0.06	1.16	-0.09	0.10	-0.83	0.05	0.05	0.86	0.09	0.10	0.86
Child Visit at 30 BDT	-0.05	0.11	-0.47	-0.05	0.11	-0.47	-0.06	0.07	-0.95	-0.03	0.10	-0.30	-0.05	0.06	-0.90	-0.02	0.10	-0.16
Child Visit at 60 BDT	0.00	0.10	-0.02	0.00	0.10	-0.02	0.12	0.06	1.92	0.18	0.10	1.80	0.13	0.05	2.48	0.04	0.10	0.45
Drug Availability																		
Brand Drugs Available	0.59	0.08	7.63	0.59	0.08	7.63	0.67	0.05	14.28	0.61	0.07	8.16	0.65	0.04	16.47	0.64	0.07	9.11
Non-Brand Drugs Available	-0.25	0.09	-2.75	-0.25	0.09	-2.75	-0.29	0.05	-5.28	-0.33	0.09	-3.92	-0.30	0.05	-6.52	-0.36	0.08	-4.25
Uncertain Availability of Drugs or No Drugs	-0.35	0.09	-3.99	-0.35	0.09	-3.99	-0.38	0.06	-6.84	-0.27	0.08	-3.24	-0.35	0.05	-7.62	-0.29	0.08	-3.59
Continuum of Child Health Care																		
Availability of Child Health Services	-0.03	0.06	-0.59	-0.03	0.06	-0.59	-0.06	0.04	-1.54	-0.04	0.06	-0.67	-0.06	0.03	-2.09	-0.02	0.05	-0.45
Availability of Child Health Services with Ambul.	0.03	0.06	0.59	0.03	0.06	0.59	0.06	0.04	1.54	0.04	0.06	0.67	0.06	0.03	2.09	0.02	0.05	0.45

	Overall (N=300)			Non-Poor (N=55)			Poor (N=177)			Poorest (N=61)			Urban (226)			Peri-Urban (73)		
	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat	Eff	Std Err	t- Rat
Diagnostic Services																		
Available	0.23	0.06	3.69	0.23	0.06	3.69	0.34	0.04	8.90	0.34	0.06	5.76	0.37	0.03	11.65	0.18	0.06	3.16
Not Available	-0.23	0.06	-3.69	-0.23	0.06	-3.69	-0.34	0.04	-8.90	-0.34	0.06	-5.76	-0.37	0.03	-11.65	-0.18	0.06	-3.16
Facility Environment																		
Not Clean	-0.38	0.11	-3.41	-0.38	0.11	-3.41	-0.38	0.07	-5.44	-0.24	0.11	-2.22	-0.28	0.06	-4.96	-0.52	0.11	-4.88
Clean	0.38	0.11	3.41	0.38	0.11	3.41	0.38	0.07	5.44	0.24	0.11	2.22	0.28	0.06	4.96	0.52	0.11	4.88
Accountability																		
No Option Available for Making Complaints	-0.33	0.18	-1.80	-0.33	0.18	-1.80	-0.22	0.12	-1.95	-0.05	0.18	-0.29	-0.21	0.10	-2.19	-0.27	0.18	-1.54
Access to Comment Box	0.31	0.19	1.70	0.31	0.19	1.70	-0.15	0.12	-1.31	-0.07	0.19	-0.38	-0.10	0.10	-1.00	0.15	0.18	0.83
Identified Person to Complain to	0.07	0.18	0.36	0.07	0.18	0.36	-0.05	0.11	-0.42	-0.08	0.17	-0.47	0.01	0.09	0.09	-0.04	0.16	-0.24
Available Phone Line for Making complaints	-0.05	0.19	-0.26	-0.05	0.19	-0.26	0.42	0.11	3.86	0.20	0.17	1.22	0.30	0.09	3.29	0.16	0.18	0.89
Waiting Times																		
Less than 1 Hour	0.15	0.14	1.13	0.15	0.14	1.13	0.30	0.09	3.55	0.42	0.14	3.11	0.32	0.07	4.43	0.28	0.12	2.25
Between 1 and 2 Hours	0.19	0.14	1.40	0.19	0.14	1.40	0.01	0.09	0.14	-0.02	0.14	-0.17	0.04	0.08	0.53	-0.04	0.12	-0.33
More than 2 Hours	-0.34	0.15	-2.25	-0.34	0.15	-2.25	-0.32	0.09	-3.35	-0.40	0.15	-2.66	-0.36	0.08	-4.46	-0.24	0.14	-1.71
None	-0.48	0.13	-3.67	-0.48	0.13	-3.67	-0.36	0.08	-4.48	-0.25	0.12	-2.10	-0.31	0.07	-4.76	-0.70	0.13	-5.29

ANNEX L: ATTRIBUTE LEVELS AND INTERACTIONS (MATERNAL)

Annex L: Maternal Health Service

Attribute/Attribute Level	Count
Provider Type	
Total Respondents	300
Paramedic	0.250
Nurse	0.219
Female Doctor	0.336
Male Doctor	0.294
Within Att. Chi-Square	51.004
D.F.	3.000
Significance	p < .01
Provider Attitude	
Total Respondents	300
Rude	0.208
Polite	0.342
Within Att. Chi-Square	118.41
D.F.	1.000
Significance	p < .01
Continuum of Maternal Health Care	
Total Respondents	300
Delivery Service Not Available	0.153
Up to Normal Delivery Service Available (Including ANC and PNC)	0.251
Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0.279
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.308
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.392
Within Att. Chi-Square	155.499
D.F.	4
Significance	p < .01
Drug Availability	
Total Respondents	300
Brand Drugs Available	0.370
Non-Brand Drugs Available	0.211
Uncertain Availability of Drugs or No Drugs	0.245
Within Att. Chi-Square	121
D.F.	2
Significance	p < .01
Diagnostic Services	
Total Respondents	300.000
Available	0.326
Not Available	0.225
Within Att. Chi-Square	66
D.F.	1
Significance	p < .01

Attribute/Attribute Level	Count
Facility Environment	
Total Respondents	300.000
Not Clean	0.225
Clean	0.318
Within Att. Chi-Square	19
D.F.	1
Significance	p < .01
Provider Type x Provider Attitude	
Total Respondents	300.000
Paramedic - Rude	0.205
Paramedic - Polite	0.298
Nurse - Rude	0.190
Nurse - Polite	0.248
Female Doctor - Rude	0.243
Female Doctor - Polite	0.420
Male Doctor - Rude	0.194
Male Doctor - Polite	0.396
Interaction Chi-Square	13
D.F.	3
Significance	p < .01
Provider Type x Price	
Total Respondents	300.000
Paramedic – Free Service	0.196
Paramedic - Normal Delivery 600 BDT	0.267
Paramedic - Normal Delivery 800 BDT	0.288
Nurse– Free Service	0.198
Nurse - Normal Delivery 600 BDT	0.188
Nurse - Normal Delivery 800 BDT	0.270
Female Doctor – Free Service	0.361
Female Doctor- Normal Delivery 600 BDT	0.369
Female Doctor- Normal Delivery 800 BDT	0.274
Male Doctor – Free Service	0.300
Male Doctor- Normal Delivery 600 BDT	0.310
Male Doctor- Normal Delivery 800 BDT	0.270
Interaction Chi-Square	32.653
D.F.	6.000
Significance	p < .01
Provider Type x Continuum of Maternal Health Care	
Total Respondents	300
Paramedic -Delivery Service Not Available	0.137
Paramedic-Up to Normal Delivery Service Available (Including ANC and PNC)	0.245
Paramedic-Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0
Paramedic- Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.297
Paramedic-Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	
Nurse-Delivery Service Not Available	0.157
Nurse-Up to Normal Delivery Service Available (Including ANC and PNC)	0.225
Nurse-Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0.267
Nurse- Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.228

Attribute/Attribute Level	Count
Nurse Paramedic-Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	
Female Doctor-Delivery Service Not Available	0.255
Female Doctor-Up to Normal Delivery Service Available (Including ANC and PNC)	0.251
Female Doctor-Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0.274
Female Doctor- Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.400
Female Doctor Paramedic-Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.398
Male Doctor-Delivery Service Not Available	0.069
Male Doctor-Up to Normal Delivery Service Available (Including ANC and PNC)	0.297
Male Doctor-Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0
Male Doctor- Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.348
Male Doctor Paramedic-Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.385
Interaction Chi-Square	52.919
D.F.	12
Significance	$p < .01$
Provider Type x Facility Environment	
Total Respondents	300
Paramedic - Not Clean	0.146
Paramedic - Clean	0
Nurse- Not Clean	0.166
Nurse- Clean	0.291
Female Doctor- Not Clean	0.315
Female Doctor- Clean	0.325
Male Doctor- Not Clean	0.243
Male Doctor- Clean	0
Interaction Chi-Square	12.722
D.F.	3.000
Significance	$p < .01$
Provider Attitude x Continuum of Maternal Health Care	
Total Respondents	300
Rude - Delivery Service Not Available	0.130
Rude - Up to Normal Delivery Service Available (Including ANC and PNC)	0
Rude - Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0.169
Rude - Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.278
Rude - Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.258
Polite - Delivery Service Not Available	0.176
Polite - Up to Normal Delivery Service Available (Including ANC and PNC)	0.298
Polite - Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0
Polite - Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.342
Polite - Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.522
Interaction Chi-Square	26.417
D.F.	4
Significance	$p < .01$

Attribute/Attribute Level	Count
Price x Continuum of Maternal Health Care	
Total Respondents	300
Free Service -Delivery Service Not Available	0.124
Free Service -Up to Normal Delivery Service Available (Including ANC and PNC)	0
Free Service- Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0.271
Free Service-Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.273
Free Service-Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.415
Normal Delivery 600 BDT -Delivery Service Not Available	0.139
Normal Delivery 600 BDT -Up to Normal Delivery Service Available (Including ANC and PNC)	0.285
Normal Delivery 600 BDT- Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0
Normal Delivery 600 BDT-Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.340
Normal Delivery 600 BDT-Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.448
Normal Delivery 800 BDT - Delivery Service Not Available	0.195
Normal Delivery 800 BDT-Up to Normal Delivery Service Available (Including ANC and PNC)	0.202
Normal Delivery 800 BDT- Up to Normal Delivery Service Available (Including ANC, PNC and Referral)	0.340
Normal Delivery 800 BDT-Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral)	0.319
Normal Delivery 800 BDT-Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery)	0.319
Interaction Chi-Square	41.269
D.F.	8.000
Significance	$p < .01$
Price x Drug Availability	
Total Respondents	300
Free Service - Brand Drugs Available	0
Free Service -Non-Brand Drugs Available	0.194
Free Service - Uncertain Availability of Drugs or No Drugs	0.209
Normal Delivery 600 BDT- Brand Drugs Available	0.393
Normal Delivery 600 BDT-Non-Brand Drugs Available	0.169
Normal Delivery 600 BDT- Uncertain Availability of Drugs or No Drugs	0.294
Normal Delivery 800 BDT- Brand Drugs Available	0.325
Normal Delivery 800 BDT-Non-Brand Drugs Available	0.273
Normal Delivery 800 BDT- Uncertain Availability of Drugs or No Drugs	0.233
Interaction Chi-Square	38.842
D.F.	4
Significance	$p < .01$
Price x Facility Environment	
Total Respondents	300
Free Service - Not Clean	0.261
Free Service - Clean	0
Normal Delivery 600 BDT- Not Clean	0.176
Normal Delivery 600 BDT- Clean	0.324
Normal Delivery 800 BDT- Not Clean	0.244
Normal Delivery 800 BDT- Clean	0.379
Interaction Chi-Square	13.092
D.F.	2.000
Significance	$p < .01$

Attribute/Attribute Level	Count
Price x Accountability	
Total Respondents	300.000
Free Service - No Option Available for Making Complaints	0.183
Free Service - Access to Comment Box	0.283
Free Service -Identified Person to Complain to	0.304
Free Service - Available Phone Line for Making complaints	0.165
Normal Delivery 600 BDT- No Option Available for Making Complaints	0.243
Normal Delivery 600 BDT- Access to Comment Box	0
Normal Delivery 600 BDT-Identified Person to Complain to	0.287
Normal Delivery 600 BDT- Available Phone Line for Making complaints	0.48
Normal Delivery 800 BDT- No Option Available for Making Complaints	0.345
Normal Delivery 800 BDT- Access to Comment Box	0.189
Normal Delivery 800 BDT-Identified Person to Complain to	0.223
Normal Delivery 800 BDT- Available Phone Line for Making complaints	0
Interaction Chi-Square	43.643
D.F.	6.000
Significance	p < .01
Continuum of Maternal Health Care x Diagnostic Services	
Total Respondents	300
Delivery Service Not Available - Available	0.198
Delivery Service Not Available – Not Available	0.109
Up to Normal Delivery Service Available (Including ANC and PNC) - Available	0.280
Up to Normal Delivery Service Available (Including ANC and PNC) – Not Available	0.221
Up to Normal Delivery Service Available (Including ANC, PNC and Referral) - Available	0.368
Up to Normal Delivery Service Available (Including ANC, PNC and Referral) – Not Available	0.191
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral) - Available	0.328
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral) – Not Available	0.287
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery) - Available	0
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery) – Not Available	0.321
Interaction Chi-Square	17.829
D.F.	4
Significance	p < .01
Continuum of Maternal Health Care x Facility Environment	
Total Respondents	300.000
Delivery Service Not Available – Not Clean	0.107
Delivery Service Not Available – Clean	0.180
Up to Normal Delivery Service Available (Including ANC and PNC) – Not Clean	0.177
Up to Normal Delivery Service Available (Including ANC and PNC) – Clean	0.374
Up to Normal Delivery Service Available (Including ANC, PNC and Referral) – Not Clean	0.256
Up to Normal Delivery Service Available (Including ANC, PNC and Referral)- Clean	0.346
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral) – Not Clean	0.312
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral) - Clean	0.262
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery) – Not Clean	0.27
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery) - Clean	0.443
Interaction Chi-Square	15.532
D.F.	4
Significance	p < .01

Attribute/Attribute Level	Count
Continuum of Maternal Health Care x Waiting Times	
Total Respondents	300
Delivery Service Not Available-Less than 1 Hour	0.128
Delivery Service Not Available-Between 1 and 2 Hours	0.154
Delivery Service Not Available-More than 2 Hours	0.238
Up to Normal Delivery Service Available (Including ANC and PNC) -Less than 1 Hour	0.285
Up to Normal Delivery Service Available (Including ANC and PNC) -Between 1 and 2 Hours	0.181
Up to Normal Delivery Service Available (Including ANC and PNC) -More than 2 Hours	0.242
Up to Normal Delivery Service Available (Including ANC, PNC and Referral) -Less than 1 Hour	0
Up to Normal Delivery Service Available (Including ANC, PNC and Referral) -Between 1 and 2 Hours	0.322
Up to Normal Delivery Service Available (Including ANC, PNC and Referral) -More than 2 Hours	0.258
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral) -Less than 1 Hour	0.423
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral) -Between 1 and 2 Hours	0.237
Up to Normal Delivery Service Available (Including ANC, PNC and Ambulance Service for Referral) -More than 2 Hours	0.344
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery) -Less than 1 Hour	1
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery) -Between 1 and 2 Hours	0.487
Up to C-Section Delivery Service Available (Including ANC, PNC and Normal Delivery) -More than 2 Hours	0.255
Interaction Chi-Square	33.727
D.F.	8.000
Significance	$p < .01$
Drug Availability x Waiting Times	
Total Respondents	300
Brand Drugs Available - Less than 1 Hour	0.312
Brand Drugs Available - Between 1 and 2 Hours	0.430
Brand Drugs Available - More than 2 Hours	0.353
Non-Brand Drugs Available- Less than 1 Hour	0.310
Non-Brand Drugs Available- Between 1 and 2 Hours	0.198
Non-Brand Drugs Available- More than 2 Hours	0.262
Uncertain Availability of Drugs or No Drugs- Less than 1 Hour	0.258
Uncertain Availability of Drugs or No Drugs- Between 1 and 2 Hours	0.186
Uncertain Availability of Drugs or No Drugs- More than 2 Hours	0
Interaction Chi-Square	15.702
D.F.	4
Significance	$p < .01$
Diagnostic Services x Accountability	
Total Respondents	300
Available - No Option Available for Making Complaints	0
Available - Access to Comment Box	0.341
Available -Identified Person to Complain to	0.383
Available -Available Phone Line for Making Complaints	0.350
Not Available- No Option Available for Making Complaints	0.246
Not Available- Access to Comment Box	0.192
Not Available - Identified Person to Complain to	0.170
Not Available -Available Phone Line for Making Complaints	0.273
Interaction Chi-Square	13
D.F.	3
Significance	$p < .01$

ANNEX M: ATTRIBUTE INTERACTIONS (CHILD)

Annex M: Child Health Service

Attribute/Attribute Level	Count
Provider Type	
Total Respondents	301.000
Paramedic	0.262
Nurse	0.258
Female Doctor	0
Male Doctor	0.306
Within Att. Chi-Square	12.812
D.F.	3
Significance	p < .01
Provider Attitude	
Total Respondents	301.000
Rude	0
Polite	0.380
Within Att. Chi-Square	242.559
D.F.	1
Significance	p < .01
Drug Availability	
Total Respondents	301
Brand Drugs Available	0.444
Non-Brand Drugs Available	0
Uncertain Availability of Drugs or No Drugs	0.194
Within Att. Chi-Square	334.697
D.F.	2
Significance	p < .01
Continuum of Child Health Care	
Total Respondents	301.000
Availability of Child Health Services	0
Availability of Child Health Services with Ambulance for Referral	0.299
Within Att. Chi-Square	7.296
D.F.	1
Significance	p < .01
Diagnostic Services	
Total Respondents	301.000
Available	0
Not Available	0.219
Within Att. Chi-Square	101.289
D.F.	1
Significance	p < .01
Facility Environment	
Total Respondents	301.000
Not Clean	0
Clean	0.338
Within Att. Chi-Square	26.381

Attribute/Attribute Level	Count
D.F.	1
Significance	p < .01
Accountability	
Total Respondents	301.000
No Option Available for Making Complaints	0.243
Access to Comment Box	0.274
Identified Person to Complain to	0
Available Phone Line for Making complaints	0.352
Within Att. Chi-Square	13.578
D.F.	3
Significance	p < .01
Waiting Times	
Total Respondents	301
Less than 1 Hour	0.333
Between 1 and 2 Hours	0
More than 2 Hours	0.221
Within Att. Chi-Square	17.554
D.F.	2
Significance	p < .01
Provider Type x Price	
Total Respondents	301.000
Paramedic -Free Service	0.265
Paramedic -Child Visit at 15 BDT	0.301
Paramedic -Child Visit at 30 BDT	0.235
Paramedic -Child Visit at 60 BDT	0.241
Nurse-Free Service	0.274
Nurse-Child Visit at 15 BDT	0.221
Nurse-Child Visit at 30 BDT	0.257
Nurse-Child Visit at 60 BDT	0.276
Female Doctor-Free Service	0.235
Female Doctor-Child Visit at 15 BDT	0.346
Female Doctor-Child Visit at 30 BDT	0.358
Female Doctor-Child Visit at 60 BDT	0.280
Male Doctor-Free Service	0.252
Male Doctor-Child Visit at 15 BDT	0.331
Male Doctor-Child Visit at 30 BDT	0
Male Doctor-Child Visit at 60 BDT	0.391
Interaction Chi-Square	34.568
D.F.	9
Significance	p < .01
Provider Type x Drug Availability	
Total Respondents	301.000
Paramedic - Brand Drugs Available	0.487
Paramedic - Non-Brand Drugs Available	0.150
Paramedic -Uncertain Availability of Drugs or No Drugs	0.131
Nurse- Brand Drugs Available	0.348
Nurse - Non-Brand Drugs Available	0.245
Nurse-Uncertain Availability of Drugs or No Drugs	0.189
Female Doctor- Brand Drugs Available	0.448
Female Doctor- Non-Brand Drugs Available	0.235

Attribute/Attribute Level	Count
Female Doctor-Uncertain Availability of Drugs or No Drugs	0.226
Male Doctor- Brand Drugs Available	0.490
Male Doctor- Non-Brand Drugs Available	0
Male Doctor-Uncertain Availability of Drugs or No Drugs	0.226
Interaction Chi-Square	40.928
D.F.	6
Significance	p < .01
Provider Type x Facility Environment	
Total Respondents	301.000
Paramedic - Not Clean	0.135
Paramedic - Clean	0.340
Nurse- Not Clean	0.222
Nurse- Clean	0.291
Female Doctor- Not Clean	0.186
Female Doctor- Clean	0.399
Male Doctor- Not Clean	0
Male Doctor- Clean	0.351
Interaction Chi-Square	20.921
D.F.	3
Significance	p < .01
Provider Attitude x Drug Availability	
Total Respondents	301.000
Rude - Brand Drugs Available	0.328
Rude - Non-Brand Drugs Available	0.108
Rude - Uncertain Availability of Drugs or No Drugs	0.119
Polite - Brand Drugs Available	0.560
Polite - Non-Brand Drugs Available	0
Polite - Uncertain Availability of Drugs or No Drugs	0.274
Interaction Chi-Square	19.117
D.F.	2
Significance	p < .01
Price x Continuum of Child Health Care	
Total Respondents	301.000
Free Service - Availability of Child Health Services	0.205
Free Service - Availability of Child Health Services with Ambulance for Referral	0.308
Child Visit at 15 BDT - Availability of Child Health Services	0.249
Child Visit at 15 BDT - Availability of Child Health Services with Ambulance for Referral	0.355
Child Visit at 30 BDT - Availability of Child Health Services	0.306
Child Visit at 30 BDT - Availability of Child Health Services with Ambulance for Referral	0.246
Child Visit at 60 BDT - Availability of Child Health Services	0
Child Visit at 60 BDT	0.291
Interaction Chi-Square	34.203
D.F.	3
Significance	p < .01
Price x Facility Environment	
Total Respondents	301.000
Free Service - Not Clean	0.169
Free Service - Clean	0.425
Child Visit at 15 BDT - Not Clean	0.186
Child Visit at 15 BDT - Clean	0.274

Attribute/Attribute Level	Count
Child Visit at 30 BDT - Not Clean	0.312
Child Visit at 30 BDT - Clean	0.226
Child Visit at 60 BDT - Not Clean	0
Child Visit at 60 BDT - Clean	0.417
Interaction Chi-Square	33.301
D.F.	3
Significance	p < .01
Price x Accountability	
Total Respondents	301.000
Free Service - No Option Available for Making Complaints	0.282
Free Service - Access to Comment Box	0.243
Free Service -Identified Person to Complain to	0.191
Free Service - Available Phone Line for Making Complaints	0.397
Child Visit at 15 BDT- No Option Available for Making Complaints	0.344
Child Visit at 15 BDT- Access to Comment Box	0.353
Child Visit at 15 BDT -Identified Person to Complain to	0.297
Child Visit at 15 BDT- Available Phone Line for Making Complaints	0.497
Child Visit at 30 BDT- No Option Available for Making Complaints	0.201
Child Visit at 30 BDT - Access to Comment Box	0.198
Child Visit at 30 BDT - Identified Person to Complain to	0.240
Child Visit at 30 BDT - Available Phone Line for Making Complaints	0.399
Child Visit at 60 BDT- No Option Available for Making Complaints	0.162
Child Visit at 60 BDT - Access to Comment Box	0.300
Child Visit at 60 BDT - Identified Person to Complain to	0
Child Visit at 60 BDT - Available Phone Line for Making Complaints	0.176
Interaction Chi-Square	42.976
D.F.	9
Significance	p < .01
Price x Waiting Times	
Total Respondents	301.000
Free Service - Less than 1 Hour	0.197
Free Service - Between 1 and 2 Hours	0.178
Free Service - More than 2 Hours	0.239
Child Visit at 15 BDT- Less than 1 Hour	0.456
Child Visit at 15 BDT - Between 1 and 2 Hours	0.242
Child Visit at 15 BDT - More than 2 Hours	0.200
Child Visit at 30 BDT- Less than 1 Hour	0.340
Child Visit at 30 BDT - Between 1 and 2 Hours	0.325
Child Visit at 30 BDT - More than 2 Hours	0.181
Child Visit at 60 BDT- Less than 1 Hour	0.329
Child Visit at 60 BDT - Between 1 and 2 Hours	0
Child Visit at 60 BDT - More than 2 Hours	0.257
Interaction Chi-Square	24.758
D.F.	6
Significance	p < .01
Continuum of Child Health Care x Accountability	
Total Respondents	301.000
Availability of Child Health Services - No Option Available for Making Complaints	0.313
Availability of Child Health Services - Access to Comment Box	0.232
Availability of Child Health Services - Identified Person to Complain to	0.298

Attribute/Attribute Level	Count
Availability of Child Health Services - Available Phone Line for Making complaints	0.247
Availability of Child Health Services with Ambulance for Referral - Services - No Option Available for Making Complaints	0.185
Availability of Child Health Services with Ambulance for Referral - Access to Comment Box	0.308
Availability of Child Health Services with Ambulance for Referral - Identified Person to Complain to	0
Availability of Child Health Services with Ambulance for Referral - Available Phone Line for Making Complaints	0.440
Interaction Chi-Square	29.261
D.F.	3
Significance	p < .01
Diagnostic Services x Accountability	
Total Respondents	301.000
Available - No Option Available for Making Complaints	0.248
Available - Access to Comment Box	0.269
Available - Identified Person to Complain to	0.345
Available - Available Phone Line for Making complaints	0.460
Not Available - No Option Available for Making Complaints	0.238
Not Available - Access to Comment Box	0.281
Not Available - Identified Person to Complain to	0
Not Available - Available Phone Line for Making Complaints	0.227
Interaction Chi-Square	17.468
D.F.	3
Significance	p < .01

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