EVALUATION OF IMPACTS OF THE URBAN FAMILY HEALTH PARTNERSHIP (UFHP)

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Abstract

Data from the 2001 Urban Family Health Partnership (UFHP) Evaluation Survey are used to determine the impact of the project in improving the health and health care seeking behaviors of the populations toward which the project is targeted. The results discussed have two main components: (1) a discussion of trends in the use of UFHP services and (2) multilevel analyses of determinants of health outcomes and health care seeking behaviors, including the impacts of the UFHP project in affecting outcomes and behaviors.

Key Findings:

- Since 1998, there have been notable increases in the share of UFHP providers in the supply of antenatal care, contraceptive methods, and childhood immunizations. The project seems to have little impact on children's curative care.
- Except for antenatal care and to a smaller extent modern contraception, there is little statistical difference between the poor and non-poor in many health outcomes and in the use of UFHP health providers.
- Proximity to UHFP providers significantly increases the likelihood that women will use essential UFHP services. The quality of UFHP satellite clinics (e.g., levels of training, service availability) has a significant impact upon their use. The impacts of quality and service availability at UFHP static clinics are less clear.
- The magnitudes of the effects of prices on use are small. A 5 taka increase in the price of contraception at satellite clinics and static clinics is estimated to reduce the quantity demanded by only 0.4 and 0.2 percentage points respectively.
- The delineation of UFHP and non-UFHP catchment areas appears artificial. Considerable overlap exists between the two areas. Community leaders in non-UFHP areas, for example, identify UFHP facilities as serving their areas. Individuals from non-UFHP areas also report using UFHP facilities, often in greater numbers than residents from UFHP areas themselves.

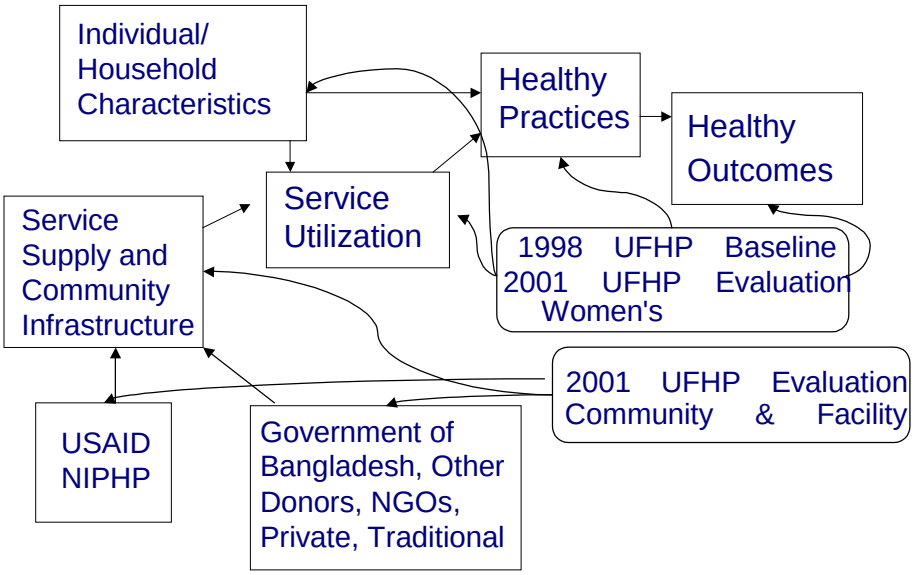
1. Background

The 2001 Urban Family Health Partnership (UFHP) Evaluation Survey was designed to evaluate the performance of the UFHP program in delivering an Essential Service Package (ESP) of primary health care interventions through a network of static clinics and satellite clinics to under-served urban populations of Bangladesh. The survey collected information from 7,194 women - 5,414 in urban areas which the program described as its catchment area and 1,780 women in urban non-catchment comparison areas. Women reported information on fertility and birth histories, awareness and use of family planning and reproductive health services, and use of basic child health services. Data were also collected from community and village leaders on the presence of different types of health providers, including government hospitals and clinics, UFHP facilities, nongovernmental and private clinics, pharmacies, and private and traditional doctors, that serve their communities. From these community surveys, facilities were identified for more complete interviews, in which data were collected on staffing, service availability, age, equipment availability and stockouts, and supervision.

This evaluation uses several different types of analyses to determine the impact of the UFHP program in improving the health of the population in their catchment areas. These analyses – and the data sources involved – are depicted in Figure 1. First, data from the Women's Questionnaires collected in the 2001 UFHP Evaluation Survey are combined with similar data from the 1998 UFHP Baseline Survey conducted in the first year of the UFHP program. The advantage of the pooled data are that they can be used to determine whether improvements have been noted from 1998 to 2001 in the use of essential health services, in healthy practices and in key health outcomes. Attribution of any improvements to the influence of the project, however, is difficult in the absence of suitable comparison groups; any improvements may in fact reflect secular trends in the health of urban populations.

A second type of analysis combines the 2001 UFHP Evaluation Survey Women's Questionnaire data with data on the facilities serving those communities collected in the 2001 Facility Survey. These data include Global Positioning System (GPS) data on both facility and household locations. Women in UFHP areas are linked to the closest of different types of health facilities, including the closest UFHP static and satellite clinics. Similar linkages can be made for women in non-UFHP areas with the health facilities in their areas. Multilevel Regression Analysis can then be used to estimate the relative impacts of both facility characteristics (UFHP or other ownership, proximity, service availability, quality) and of household and women's characteristics (wealth, education, religion, autonomy) on service utilization and health outcomes. This latter analysis has the advantage of determining precisely which factors are most important in affecting the health of the project population and of determining the impact of UFHP facilities relative to other sources of care. A more complete analysis using pooled 1998 and 2001 data, however, is not possible since no facility-level information was collected in 1998.

Figure 1.1 Linking Inputs to Outcomes for Evaluating UFHP Program Impact (Simplified Framework)



The next section provides additional background on the 2001 UFHP Survey. That section also includes results on proximity of the project population to health services. The third section presents descriptive results trends in health outcomes and health behaviors from 1998 to 2001. The fourth section presents results of the multilevel regression analysis of use of essential health services.

2. Methodology

The 2001 UFHP Evaluation Survey was conducted by Mitra and Associates, a Dhaka-based research firm, with technical assistance provided by the MEASURE *Evaluation* project. Fieldwork was undertaken from June 2001 to September 2001. The 1998 UFHP Baseline Survey was also conducted by Mitra and Associates. In 1998, information was collected from 79,473 women on the use of essential health services and awareness of UFHP clinics and services. No community or facility surveys were conducted in 1998. In addition, there was no provision to survey women from areas in which the UFHP project was not operating to serve as a comparison group.

UFHP catchment areas were stratified into three types: city corporation areas, district municipalities, and thana municipalities. In addition, a sample of non-project areas (that is, areas outside of the program) was drawn from a fourth stratum constructed with those areas from all types of urban centers having NIPHP services. Overall, samples were chosen from a total of 201 sample clusters, a cluster being equivalent to a mahalla or part of a mahalla. Of these, 151 clusters were from UFHP areas and 50 clusters were from non-UFHP areas.

The distinction between UFHP and non-UFHP areas has to be interpreted with caution, as it seems that areas delineated on maps by project personnel do not appear to be respected by human behavior. The overlap between UFHP areas and non-UFHP areas is evidenced by the Community Survey data, in which community leaders from non-UFHP areas frequently identified UFHP clinics as serving their areas. This overlap is apparent in the frequency of fixed site and satellite clinics by ownership discussed below.

A fuller description of the 2001 UFHP Evaluation Survey is provided in *2001 Urban Family Health Partnership Evaluation Survey*.

Facility Survey

A detailed protocol was employed for collecting the community, facility and satellite clinic information, based on reports by community leaders on the availability of services in the Community Survey. This protocol is summarized in greater detail in Appendix A.

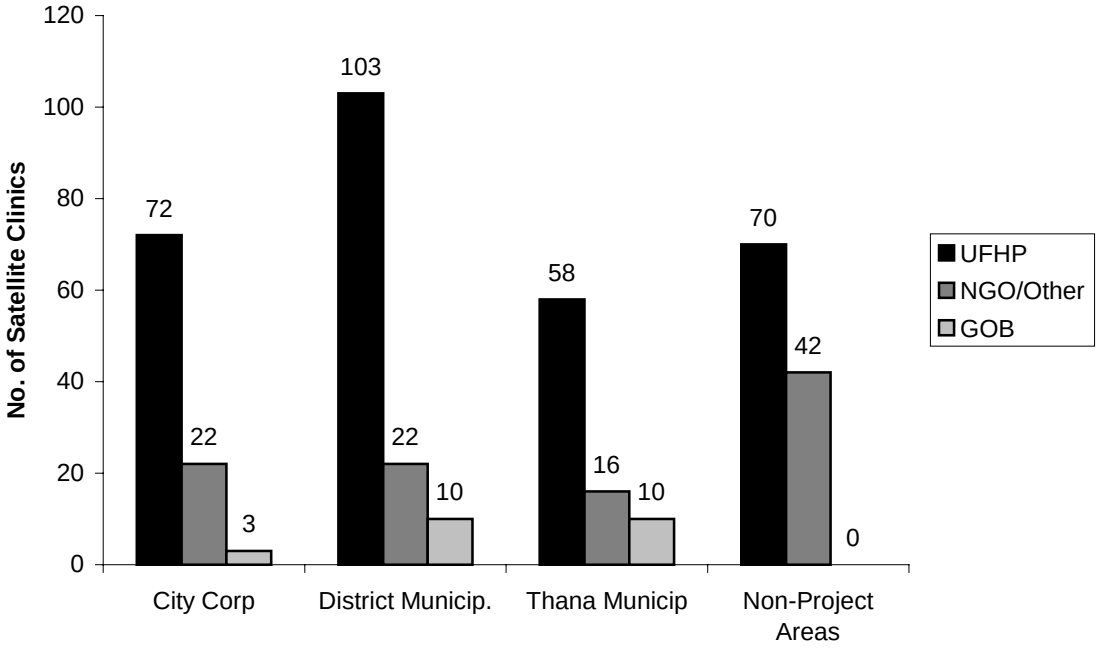
Overall, 886 facility interviews were conducted. Of these, 725 were in UFHP areas and 161 were in non-UFHP areas. The largest number of facilities were surveyed in district municipalities (388), followed by city corporations (229) and thana municipalities (108). Private clinics were the most commonly surveyed facilities (242) in UFHP areas, followed by other NGO clinics (165) and UFHP Static Clinics (91). While the selection algorithm called for at least one UFHP static clinic to be surveyed for each cluster, the proximity of many of the clusters meant that many UFHP static clinics served multiple clusters and therefore fewer interviews were required than the number of clusters.

Table 2.1 Number of Facilities Surveyed by Type and by Division and UFHP/Non-UFHP Areas

Facility Type	UFHP Areas				Non-UFHP Areas
	City Corp	District Municip.	Thana Municip	Total	
Hospital	15	43	8	66	14
Thana Health Center	4	20	16	40	4
Family Welfare Center	7	13	20	40	5
Maternal and Child We	9	36	4	49	5
UFHP Static Clinics	26	45	20	91	19
Private Clinic	80	141	21	242	54
Other NGO Clinic	73	77	15	165	48
Community Clinic	15	13	3	31	11
Rural Dispensary	0	0	1	1	1
Total	229	388	108	725	161

In addition, 428 interviews with satellite clinic workers were also conducted. Of these, 303 (71 percent) were UFHP satellite clinics, 23 (5 percent) were government-owned, and 102 were owned by another NGO or another type of organization. The greatest number of satellite clinics were located in district municipalities (135), followed by city corporations (97) and thana municipalities (84). Interviews were also conducted with 112 satellite clinics in non-UFHP areas. Indicative of the difficulty of delineating UFHP areas from non-UFHP areas, 70 (63 percent) of the satellite clinics in non-UFHP areas were actually UFHP clinics.

Figure 2.1 Distribution of Satellite Clinics by Division and UFHP/non-UFHP areas



Interviews were also conducted with workers at the various health facilities. Overall, 3,199 worker interviews were conducted. These do not form part of the current analysis but are likely to be included in future work.

Proximity to health services

Using information from Global Positioning Systems on the locations of households and locations of health facilities allows for assessments of how accessible basic health services are to women and children in UFHP and non-UFHP areas.

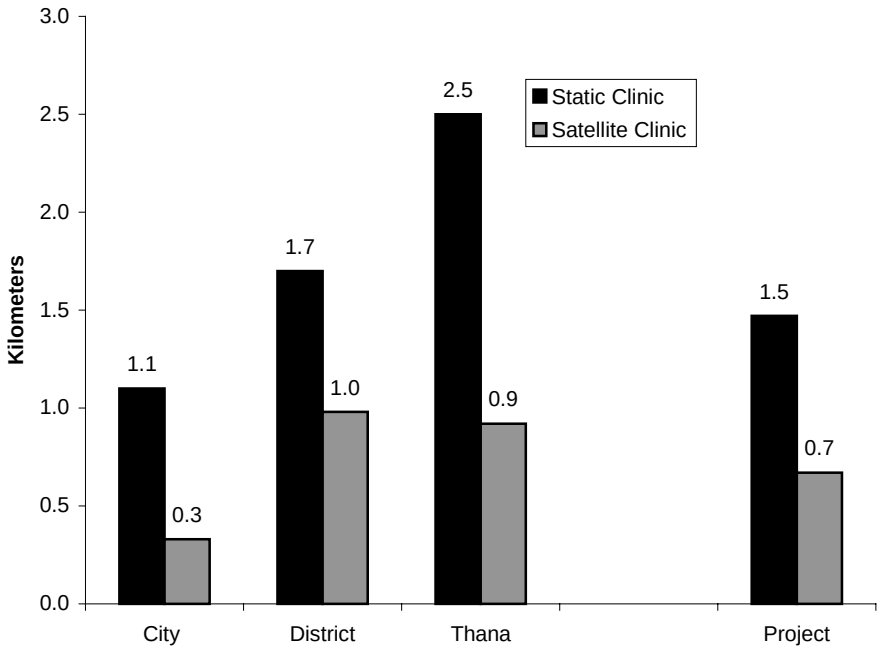
Most women in UFHP areas are within 2.5 kilometers of UFHP static and satellite clinics. Nearly 90 percent are within 2.5 kilometers of a static clinic, while 98 percent are within 5 kilometers of a UFHP static clinic. These proportions differ by city type. A greater proportion of women in city corporations are within 1 kilometer of a UFHP static clinic (55 percent) than in district municipalities (44 percent) and thana municipalities (41 percent). Similarly, a higher proportion of women in city corporations (94.5 percent) are within 1 kilometer of a UFHP static clinic than in district municipalities (85.6 percent) and thana municipalities (75.0 percent).

Table 2.2. Percent of UFHP Populations within Specified Distances of UFHP Facilities

	Distance to Closest UFHP Facility				
	0.5 km	1 km	2.5km	5 km	10 km
City Corporations					
Static Clinic	35.8%	55.2%	92.9%	98.2%	100.0%
Satellite Clinic	78.3%	94.5%	100.0%		
District Municipalities					
Static Clinic	17.0%	44.0%	88.2%	98.3%	98.3%
Satellite Clinic	69.0%	85.6%	96.9%	97.7%	97.7%
Thana Municipalities					
Static Clinic	22.6%	41.4%	72.1%	85.7%	91.3%
Satellite Clinic	54.6%	75.0%	87.6%	94.7%	100.0%
UFHP Total					
Static Clinic	25.0%	48.9%	89.0%	97.2%	98.5%
Satellite Clinic	72.1%	88.8%	97.9%	98.5%	99.0%

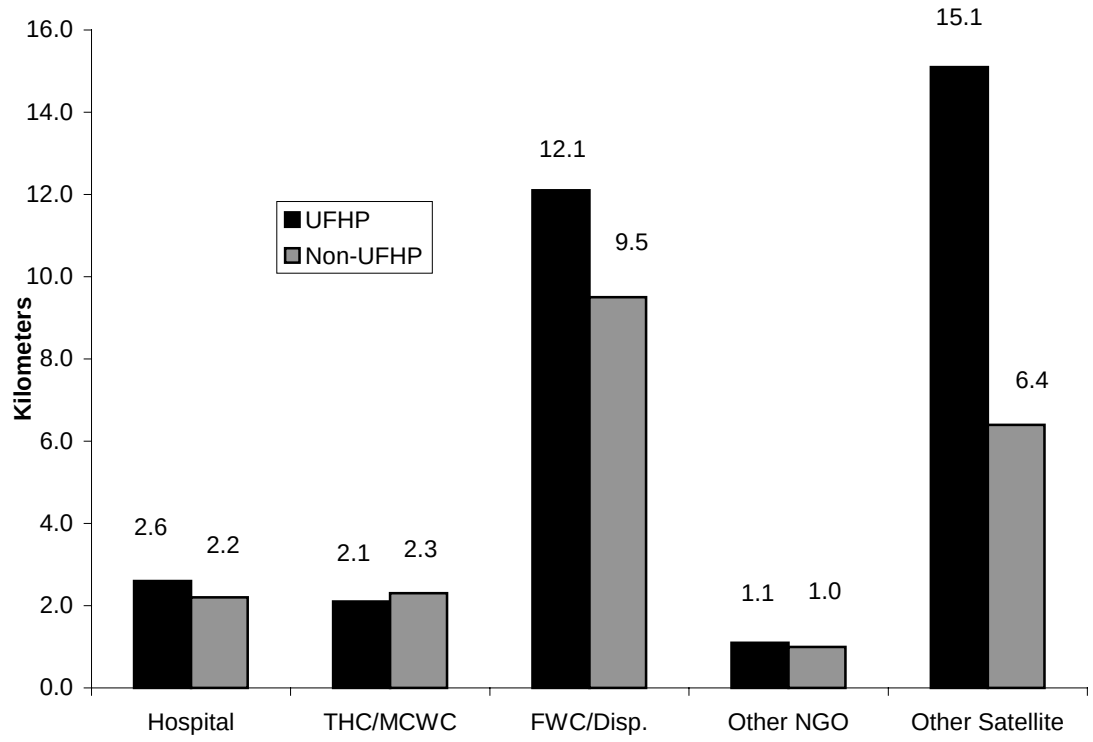
On average, individuals in UFHP areas are 1.5 kilometers from the nearest UFHP static clinic and 0.7 kilometer from the nearest UFHP satellite clinic. (Figure 2.2). UFHP facilities are less accessible in thana municipalities; individuals are 2.5 kilometers and 0.9 kilometers from the nearest UFHP static and satellite clinics, respectively. Individuals are closest to static clinics in city corporations.

Figure 2.2 Mean Distances (Kilometers) to Nearest UFHP Facility by Type and Division. UFHP areas



There is little difference in terms of access to the major types of facilities between UFHP and non-UFHP areas (Figure 2.3). Individuals in UFHP areas are 2.6 kilometers on average to the nearest hospital, as compared with 2.2 kilometers for individuals in non-UFHP areas. The closest THC/MCWC is 2.1 kilometers from individuals in UFHP areas and 2.3 kilometers from individuals in non-UFHP areas. Individuals in non-UFHP areas are closer to the less common urban facilities such as Family Welfare Centers (FWCs) (12.1 versus 9.5 kilometers) .

Figure 2.3 Mean Distances to Nearest Facilities by Type and UFHP/non-UFHP areas



3. Trends

Main Findings:

- Comparisons with the 1998 Baseline Survey indicate modest increases in the use of UFHP health care providers for certain services. For antenatal care, presence of UFHP providers appears to be the main reason for increased antenatal care use. For modern contraception and childhood vaccinations, the UFHP program appears to have offset declines by other providers.
- For some services, particularly those related to children's curative care, little change since 1998 and little impact of UFHP have been observed.
- Awareness of UFHP services – at both satellite and static clinics – has not increased since 1998 and, for several services, has shown decreases.

The 1998 Baseline Survey provides a benchmark against which to make judgments regarding the impact of the UFHP in affecting improvements in health and health-care seeking behavior among the urban populations that the project is intended to serve. Ideally, we would like to have a sample of individuals living in areas served by UFHP facilities and, for comparison, a sample of individuals in similar communities that are reported by the project not to be served by the UFHP program. The purpose of the latter group would be to act as a comparison group and to isolate whether observed changes in behavior among individuals in UFHP areas, if any, reflect the effects of the project. If changes in project areas are mirrored by similar sized changes in non-project areas, then improvements may be due to other factors in the country at large rather than to the project, unless project efforts have been mirrored by similar efforts from other groups elsewhere. However, no such comparison group was used in the 1998 Baseline Survey, and therefore it may be difficult to determine the exact nature of some trends.

We are also interested in discerning whether any increases over time in the use of UFHP services represent expansion of services to new or previously underserved users or whether increases in the use of UFHP services represent individuals who have switched from other providers of care. Such distinctions may seem trivial, but they are important for a proper evaluation of the project. As one of the stated objectives of the UFHP program is to increase "use of high-impact elements of an 'Essential Service Package' among target populations," any increase in UFHP services that comes solely from individuals who have switched from other providers could leave overall utilization rates of essential services unchanged among target populations. That being said, some degree of switching may reflect changes over time in the availability of alternative providers, such as FWAs, and increased use of UFHP services could reflect the filling of an increasing void left by other providers. On the other hand, the project comes closer to fulfilling one of its major objectives if increases in the use of UFHP services represent increased use of basic services by individuals who previously would have chosen not to use any services or were unaware that such services existed.

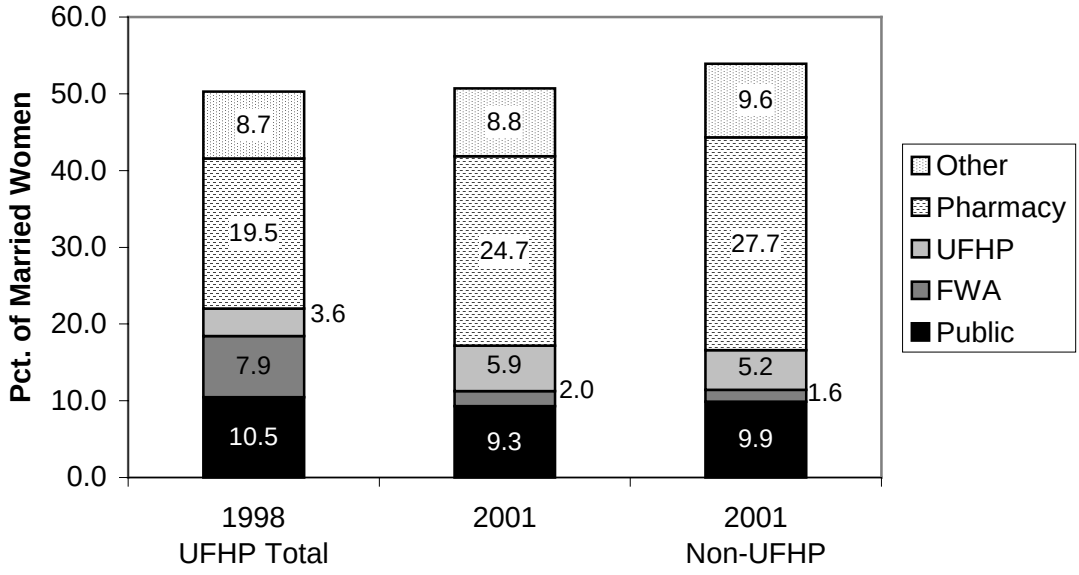
For this reason, many of the graphs below incorporate information both on the proportion of selected populations using essential services and the share of the different health care providers in providing those services. In that manner, it is more readily apparent whether changes reflect switching – if overall utilization rates remain constant but provider shares change – or whether

changes reflect expansion to new users – if overall utilization rates increase and shares for UFHP providers remain constant or increase.

The actual content of the changes in UFHP service utilization appears to be a mix of these types of changes. Utilization of certain services, antenatal care for example, has increased substantially in the population as a whole. Much of this increase appears to be related to increased use of UFHP providers. Other changes on use of UFHP sources, particularly for modern contraception, appear to have come at the expense of other providers, most notably government providers.

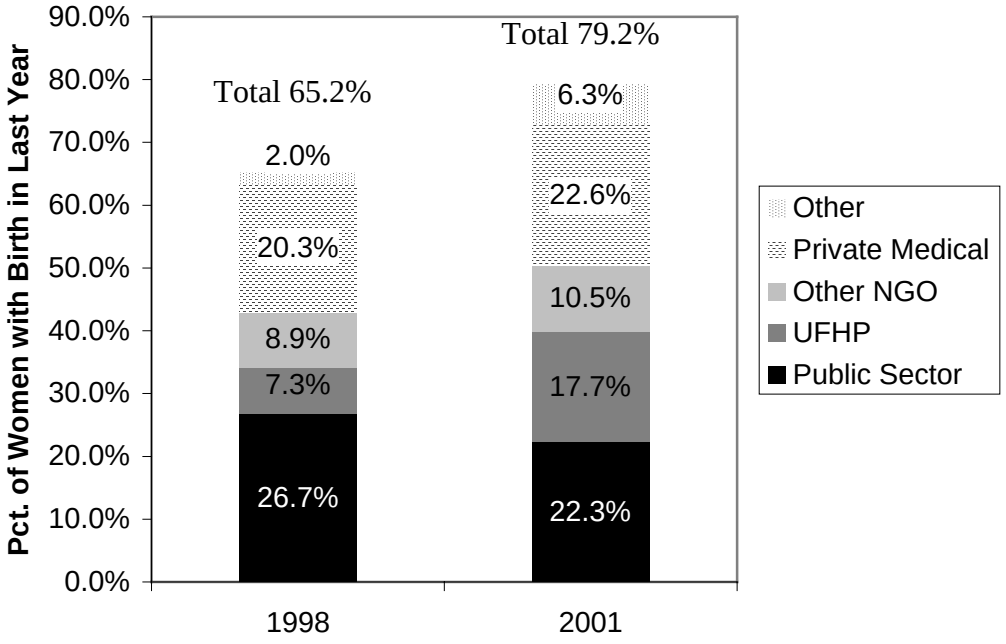
Since the UFHP Baseline Survey, the use of modern contraception rose only slightly from 50.3 to 50.7 percent of currently married women (Figure 3.1). However, considerable shifts in provider shares occurred. Most notably is a decrease in the use of Family Welfare Assistants (FWAs), which provided contraception to 7.9 percent of married women in 1998 but only 2.0 percent of women in 2001. A smaller decrease of 1.2 percentage points was also evident in the use of other public providers. UFHP providers have increased their share in the supply of modern contraception by 2.3 percentage points, from 3.6 percent of women to 5.9 percent of married women. The largest increase in share has been for pharmacies, increasing from 19.5 percent to 24.7 percent of married women.

Figure 3.1 Distribution of Sources of Contraceptive Supply in UFHP and non-UFHP areas, 1998 and 2001



Overall use of antenatal care in UFHP areas increased substantially from 1998 to 2001, from 65.2 percent of women with a birth in the last year to 79.2 percent of such women (Figure 3.2). The largest increase was for UFHP providers, whose utilization more than doubled from 1998 to 2001. In 1998, only 7.3 percent of women with a birth in the year preceding the survey used a UFHP provider for antenatal care. In 2001, that proportion increased to 17.7 percent of users, more than the private medical sector and nearly as much as the public sector. During this period, the share of public provision of antenatal care decreased from 26.7 percent to 22.3 percent of women with a birth in the last year.

Figure 3.2 Sources of Antenatal Care for births in 12 months preceding the survey, 1998 and 2001



UFHP providers appear to have counteracted declining contributions by other providers in childhood vaccinations. The proportion of fully vaccinated children aged 12 to 23 months fell from 67.9 percent in 1998 to 62.4 percent in 2001 (Figure 3.3). However, the share of UFHP providers in childhood vaccinations increased from approximately between 21.0 to 25.0 percent of vaccinations in 1998 to between 26.6 to 29.7 percent of vaccinations in 2001 (Figure 3.4). These percentages differ by antigen. The largest increase in share was for DPT vaccinations, for which UFHP providers increased their share from 21.0 percent to 29.7 percent from 1998 to 2001. The share for other antigens increased slightly less.

Coverage of vitamin A among children 6 to 59 months in the 6 months preceding the survey increased from 65.2 perecent in 1998 to 70.6 percent in 2001. No attribution of this increase to the project is possible since information on the source of the vitamin A was collected only in 1998.

Figure 3.3 Trends in Vaccination Coverage for Children 12 to 23 months vaccinated at any time before the survey, 1998 and 2001

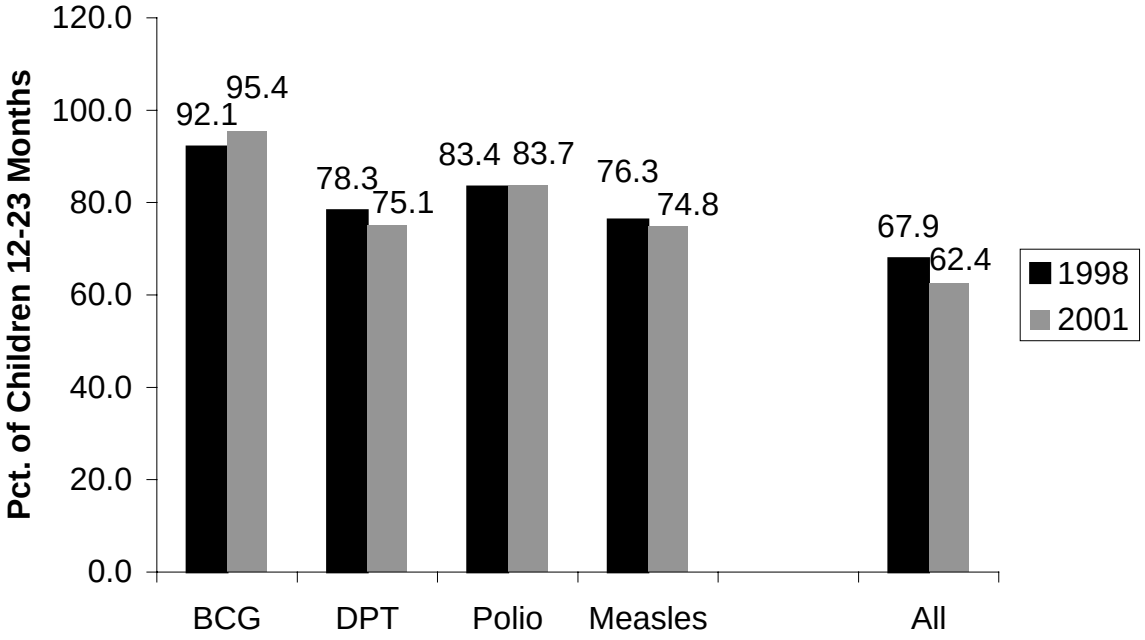
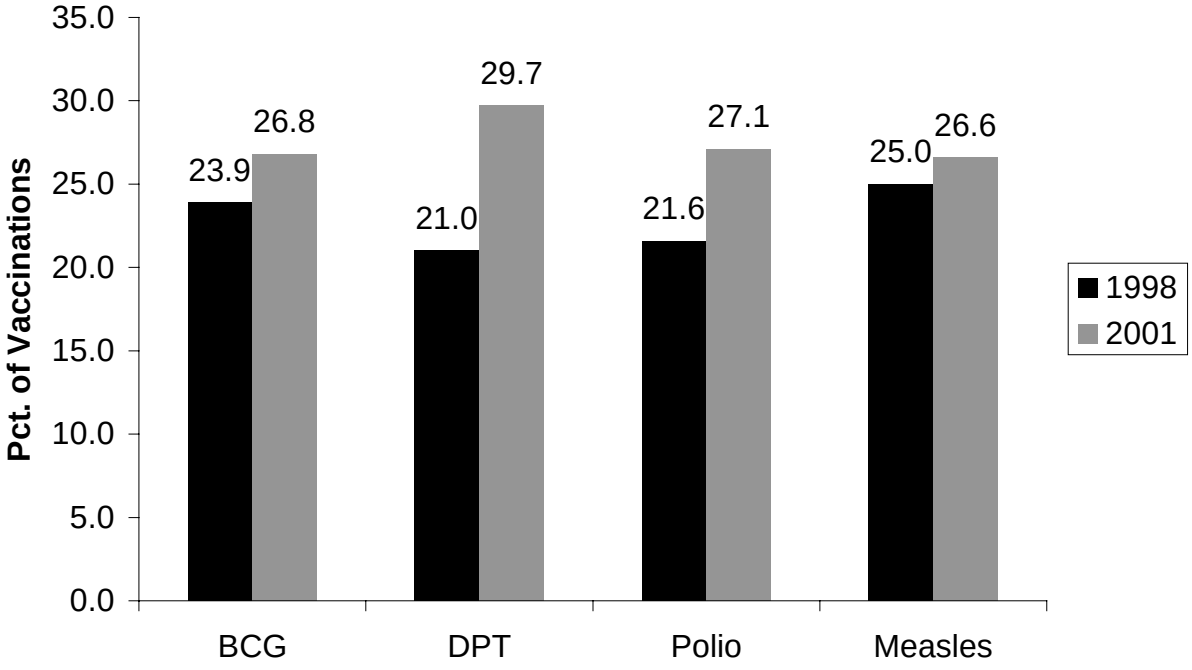


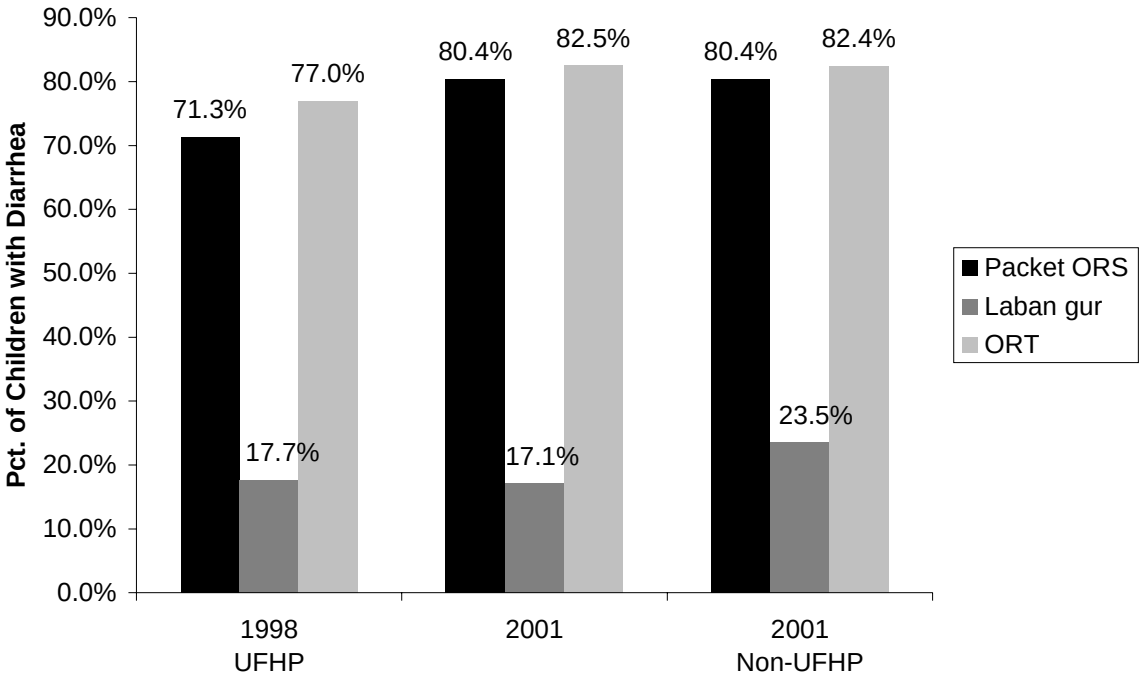
Figure 3.4 Share of UFHP Providers in Total Vaccinations by Antigen, 1998 and 2001



It is difficult to discern a significant contribution of UFHP providers in the treatment of basic childhood illnesses. Of the 924 children ill with respiratory problems or fever[1] who were taken for medical care in UFHP areas, only 16 (1.7 percent) were taken to UFHP providers. Most children received care or services from a private clinic/doctor (28.2 percent), a pharmacy (29.9 percent), or a homeopathic doctor (11.3 percent). Even public facilities provided less than 10 percent of curative care. In the 1998 Survey, a similarly small percentage – 1.2 percent – of children with symptoms of ARI were taken to UFHP providers. The public sector provided a larger share – approximately 23 percent of curative care – but other providers still addressed the majority of curative care (70.0 percent).

On the other hand, proper treatment of diarrhea with ORT in UFHP areas increased by 5.5 percentage points from 77.0 percent to 82.5 percent of children with diarrhea, though it is not possible to attribute this to the effects of UFHP (Figure 3.5). [2] Use of packet ORS increased by 9 percentage points in UFHP areas, from 71.3 percent to 80.4 percent of children with diarrhea. Treatment with *laban gur* remained much the same between the surveys, at approximately 17 to 18 percent of children with diarrhea.

Figure 3.5 Trends in Children with Diarrhea Receiving Treatment, 1998 and 2001



[1] Cough, rapid breathing, difficulty in breathy, chest in-drawing, or fever.

[2] In the 1998 Survey, UFHP facilities provided only a small proportion of care for diarrhea (5.9 percent of children with diarrhea) but nearly one fifth of vitamin A capsules to children. In the 2001 Survey, questions were not asked about the source of vitamin A nor the source of diarrhea treatment. For the latter, the much smaller sample size of the 2001 Survey and the expected small diarrhea prevalence would likely have precluded statistically significant comparisons across types of providers.

Awareness of clinical family planning methods at UFHP satellite clinics has increased by 13 percentage points among women in UFHP areas since 1998 (Figure 3.6). For all other services, awareness has decreased. For UFHP static clinics, awareness of postnatal care services, EPI and clinical family methods have remained largely unchanged, while awareness of other services has declined (Figure 3.7).

Figure 3.6 Percentage of Women who identify UFHP satellite clinics and identify specific services at those clinics

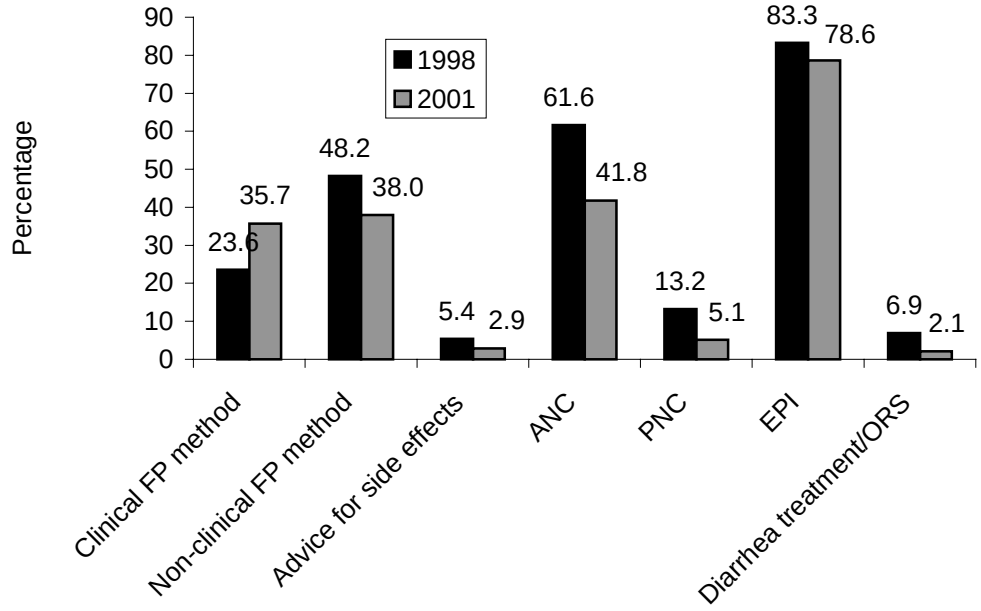
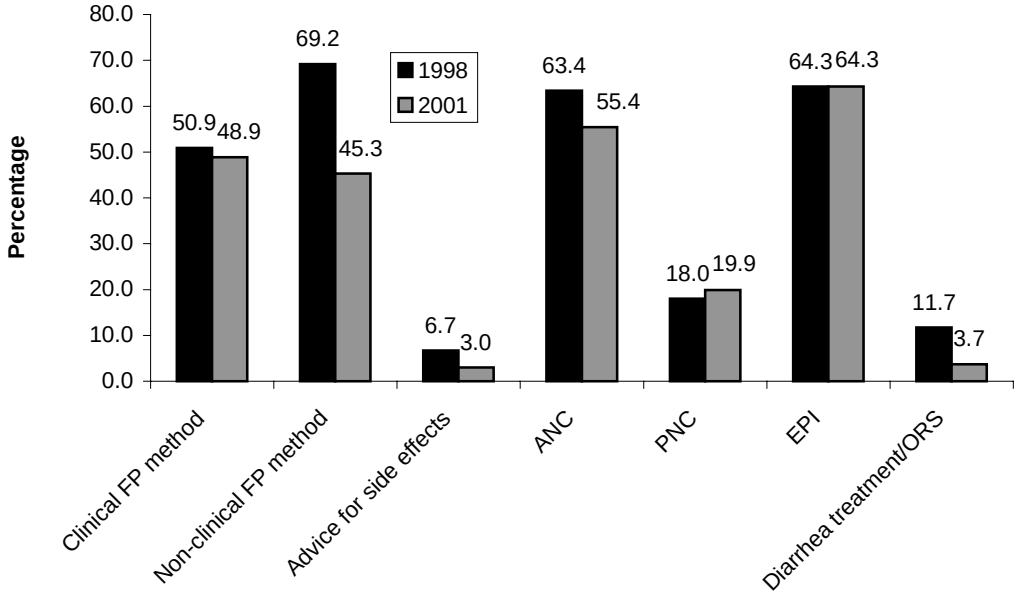


Figure 3.7 Percentage of Women who identify UFHP static clinics and identify specific services at those clinics, 1998 and 2001



4. Impact Evaluation Results

Main Findings:

- Relative to other factors that could have influenced changes in the use of health services from 1998 to 2001, the UFHP program was found to be associated with a 9.3 percentage point increase in antenatal care use rates, and a 8.7 percentage point increase in the number of pregnant women receiving at least two tetanus toxoid vaccinations. For modern contraception, immunization services, awareness of essential services and children's curative care, no clear project impact was noted.
- Higher socioeconomic status is positively associated with use of antenatal care and modern contraception. With the exception of satellite clinics for contraception, there does not appear to be appreciably greater use of UFHP services by the poor relative to the non-poor.
- Probit estimations examine factors associated with using UFHP providers for basic health services. In general, price does not appear to be a major deterrent to use of UFHP services, except perhaps for use of immunization services at UFHP static clinics. Other clinic characteristics, such as proximity, the availability of services at static clinics, satellite clinic worker training and number of satellite clinic sessions, do seem to influence their use.

Two types of impact evaluation estimates are undertaken in this section: (a) a pooled analysis of 1998 Baseline Survey and the 2001 UFHP Evaluation Survey and (b) multilevel regression analysis using data from the 2001 Women's Survey linked with the 2001 Facility Survey.

The first set of estimations is the only one that makes use of the 1998 Baseline Survey data. This is because the latter set of estimations relies upon community and facility data, neither of which were collected in the 1998 Survey. Of the two methods, the first has the advantage of being able to examine changes since the Baseline Survey, while the second set has the advantage of being able to more fully examine some of the potential impacts of specific characteristics of services on the outcomes of interest.

(a) Pooled 1998 and 2001 Data Analyses

The absence of control areas in the 1998 UFHP Baseline Survey precludes a formal difference-in-difference model in which areas under the influence of the UFHP program are compared to areas absent of the program over time. As noted in the 2001 UFHP Evaluation Survey Preliminary Report, there has been clear improvement in several indicators, most notably use of antenatal care, which increased from 65.2 percent of women with a live birth in 1998 to 79.2 percent of women with a live birth in 2001. On the other hand, use of modern contraception by married women remained almost unchanged during the same period – 50.3 percent of married women in 1998 reported using modern contraception as compared with 50.7 percent of married women in 2001.

The probit estimations in Table 4.1a examine five different health behavior and knowledge indicators collected in both the 1998 and 2001 surveys: whether or not married women were using modern contraception, whether women with a live birth in the year preceding the survey used antenatal care and received a tetanus toxoid vaccinations, and whether women were aware of fixed site clinics/hospitals or mobile clinics in the areas in which they lived. Controlling for individual and household characteristics, the probit estimations examine whether the observed changes reflect changes in individual and household characteristics or whether they reflect the effects of some other factor – either the UFHP program or secular trends in society. The important variable in the estimations is therefore the year 2001 variable. Positive and statistically significant coefficients indicate a positive change over time in an indicator, while negative and statistically significant coefficients indicate negative changes over time.

The trend variables show improvements only for use of antenatal care and receipt of tetanus toxoid vaccinations. For use of modern contraception and knowledge of mobile clinics, there is a clear but small negative trend. No trend is apparent for awareness of hospitals.

The predicted magnitudes of the trend effects are shown in Table 4.1b. These predicted values control for all of other covariates in the model to develop the pure trend effect. This is done by using the estimated coefficients and predicting the outcome of interest under two scenarios: (1) if all women were in year 1998 and (2) if all women were in 2001.

Overall, the simulations find significant changes in the outcomes that are not attributable to changes in the characteristics of the sample. These year-effects are responsible for a 9.3 percentage point increase in antenatal care use and 8.7 percentage point increase in tetanus toxoid vaccinations. The year effects are also responsible for decreases of 1.0 and 5.7 percentage points in use of modern contraception and awareness of hospitals/clinics, respectively.

Table 4.1a Probit Estimations of Use and Knowledge of Services, 1998 and 2001

Independent Variables	Modern Method Coef	Z	ANC Coef	Z	2+ TT Coef	Z	Know Hospital Coef	Z	Know Satellite Coef	Z
Age										
20-24	0.302	16.75	0.022	0.66	-0.119	-3.22	0.243	7.35	0.135	8.02
25-29	0.390	22.16	0.007	0.20	-0.233	-6.09	0.331	9.91	0.165	10.06
30-34	0.407	22.33	-0.029	-0.66	-0.268	-5.81	0.349	9.87	0.118	6.91
35-39	0.291	15.05	-0.153	-2.57	-0.420	-6.90	0.380	9.78	0.063	3.47
40-44	-0.056	-2.71	-0.052	-0.47	-0.632	-5.77	0.294	7.35	0.006	0.30
45-49	-0.429	-16.80	-0.357	-1.22	-0.356	-1.17	0.183	4.11	-0.024	-1.09
Mother's Education										
Primary	0.049	3.87	0.296	9.74	0.229	6.94	0.172	6.48	-0.022	-1.83
Secondary	0.093	6.75	0.675	18.28	0.513	12.29	0.192	6.40	-0.243	-18.65
University	0.018	0.84	1.191	14.86	0.587	7.97	0.200	4.06	-0.534	-26.64
Quintile										
2nd poorest	0.171	12.32	0.295	9.81	0.309	9.73	0.173	6.53	0.117	9.02
Middle	0.241	15.22	0.559	14.33	0.439	10.26	0.179	5.67	-0.006	-0.39
2nd richest	0.331	14.59	0.754	10.63	0.474	6.13	0.215	4.75	-0.011	-0.50
Richest	0.253	14.44	0.870	17.04	0.545	10.03	0.266	7.03	-0.233	-14.32
City Type (omitted='city')										
District municipality	0.027	2.01	-0.131	-3.51	0.052	1.33	0.155	5.94	-0.029	-2.30
Thana municipality	-0.044	-3.10	-0.405	-10.72	0.006	0.15	0.192	6.79	-0.009	-0.67
Year	-0.025	-1.43	0.297	4.88	0.373	5.34	-0.679	-25.36	-0.022	-1.30
Intercept	-0.406	-19.96	-0.131	-3.00	0.488	10.57	1.468	41.68	0.275	14.67
Obs	73148		12393		12686		83195		83180	
LR chi2(16)	3080.3		2442		970.6		1270.1		3172.4	

Table 4.1b. Predicted Changes in Outcomes

Year	Predicted Value	Pct. Change	Predicted Value	Pct. Change	Predicted Value	Pct. Change	Predicted Value	Pct. Change	Predicted Value	Pct. Change
1998	51.7		60.7		78.7		98.2		58.4	
2001	50.7	-1.9%	70	15.3%	87.4	11.1%	92.5	-5.8%	57.6	-1.4%
Absolute Change	-1.00		9.30		8.70		-5.70		-0.80	

(b) Multilevel Analysis of 2001 UFHP Evaluation Survey with Facility Characteristics

The multilevel analyses link women to their service supply environment in order to determine the relative importance of individual and supply characteristics on the use of essential services. The utilization of several types of services are examined here: modern contraception, reproductive health services and child health services. For each of the services, analyses also examine factors associated with whether or not specific types of UFHP child health providers are used.

Use of Modern Contraception

The first estimation (Table 4.2) examines factors associated with whether or not a married woman uses modern contraception. Several results are worth noting.

First, socioeconomic status is in fact significantly associated with contraceptive use (Figure 4.1). Overall, women in the richest quintile are approximately 6 percentage points more likely to use modern contraception than women in the poorest quintile. Approximately 45 percent of women in the lowest quintile in UFHP areas use modern contraception, as compared with 51 percent of women in the richest quintile.

Second, the effects of the UFHP program are measured through service availability as proxied by the distance variables from women to clinics and by a dummy variable for being in a project area. Closer UFHP facilities would be expected to be used more frequently by women. The effects of program proximity on use of clinics are modest. More proximate static clinics increase the likelihood that women will use modern contraception, but this result is not statistically significant. However, more proximate UFHP satellite clinics, located on average less than one kilometer from women, increase contraceptive use, a relationship that is significant at the 1 percent level.

Third, there is no statistically significant difference across the different city types in use of modern contraception. Fourth, women aged 20-39 are more likely to use modern contraception than women aged 12-19 but women over the age of 40 are less likely. Similarly, higher parity women are more likely to use modern contraception.

The results for use of specific UFHP facilities as a source of modern contraception have several points worth noting. First, socioeconomic status is unrelated to use of UFHP static clinics but is negatively related to use of UFHP satellite clinics. Women in the poorest socioeconomic quintile are more than three times as likely to use UFHP satellite clinics as women in the richest socioeconomic quintile.

A few facility characteristics affect whether women use both static clinics and satellite clinics. Proximity is a statistically significant predictor of use for both UFHP static and satellite clinics. Women live approximately 1.5 kilometers on average from the nearest static clinic, though 10 percent of women live 3 or more kilometers away and some live as far as 16 kilometers away. Living within a kilometer of UFHP static clinic more than doubles the likelihood of use relative to living 1-2 kilometers away and nearly quintuples

use relative to living 2-4 kilometers away. Similarly, being within 1 kilometer of a UFHP clinic more than doubles the likelihood of use – from 3.4 percent to 7.4 percent – relative to living more than 1 kilometer away (Figure 4.2). Women are approximately 0.75 kilometers on average from the nearest UFHP satellite clinic.

Changes in price have very modest effects at both satellite and static clinics. An increase in the price of antenatal care at static clinics of 5 taka would reduce use by only 0.4 percentage points at satellite clinics and only 0.2 percentage points at static clinics. Whether or not a satellite clinic worker received in-service training increases use by 5 percentage points.

Table 4.2 Probit Estimations of Use of Modern Contraception and Use of UFHP Providers

Independent Variables	Modern Method		Static Clinic		Satellite Clinic	
	Coef	Z	Coef	Z	Coef	Z
Children Ever Born	0.083	6.46	0.0554	1.61	0.099	3.40
Age						
20-24	0.265	4.19	0.0938	0.66	0.05	0.36
25-29	0.34	5.02	-0.093	-0.64	0.098	0.72
30-34	0.285	3.87	-0.157	-0.90	-0.12	-0.84
35-39	0.208	2.70	-0.197	-1.04	-0.55	-3.09
40-44	-0.28	-3.07	-0.509	-1.90	-0.72	-3.03
45-49	-0.598	-5.63	-1.134	-2.87	-1.40	-3.10
Education (omitted='none')						
Primary	0.012	0.29	-0.012	-0.11	-0.041	-0.48
Secondary	0.101	2.10	-0.056	-0.46	-0.239	-2.02
University	0.051	0.71	-0.042	-0.27	-0.526	-2.57
Quintile (omitted='poorest')						
2nd poorest	0.118	2.13	0.010	0.06	-0.196	-1.86
Middle	0.183	3.21	-0.109	-0.73	-0.305	-2.69
2nd richest	0.215	3.33	0.018	0.12	-0.428	-3.18
Richest	0.161	2.33	-0.176	-0.90	-0.814	-3.92
Urban (omitted='city')						
District	-0.010	-0.17	0.173	1.27	-0.372	-2.57
Thana	0.020	0.24	0.272	1.68	-0.053	-0.34
Distances						
Hospital 0-1 km	0.031	0.27				
Hospital 2-5 km	0.017	0.16				
THC 0-1 km	0.049	0.47				
THC 2-5 km	0.012	0.12				
FWC 0-1 km	-0.164	-2.72				
FWC 2-5 km	-0.166	-2.85				
UFHP Static 0-1 km	0.172	1.22	0.934	3.74		
UFHP Static 1-2 km	0.164	1.17	0.515	2.08		
UFHP Static 2-4 km	0.180	1.25	0.156	0.53		
NGO Clinic 0-1 km	0.231	1.23				
NGO Clinic 2-5 km	0.221	1.20				
UFHP Satel. 0-1 km	0.172	2.90			0.429	1.72
NGO Satel 0-1 km	-0.008	-0.13				
NGO Satel 2-5 km	-0.005	-0.08				
Project Area	-0.096	-1.87	0.137	0.86	0.018	0.12
Static Clinic						
Total Staff			-0.006	-0.56		
Beds			0.015	0.61		
Services			0.047	1.43		
Price Injectables			-0.001	-0.10		
Satellite Clinic						
Training					0.527	2.17
Upgraded					-0.027	-0.23

Independent Variables	Modern Method Coef	Z	Static Clinic Coef	Z	Satellite Clinic Coef	Z
Sessions					0.005	0.60
Price Injectables					-0.015	-0.99
Intercept	-0.865	-4.94	-3.231	-4.78	-2.017	-4.83
Obs	6560		3335		3298	
Wald chi2(30)	326.5		97.41		126.3	
Pseudo R2	0.04		0.0822		0.117	
Test Quintiles						
Chi2(4)	13.38	0.01	3.24	0.52	17.6	0.001
Test Facility						
Chi2(7)			46.44	0	9.29	0.098

Figure 4.1 Simulated Effects of Socioeconomic Quintile on Use of Modern Contraception, UFHP and non-UFHP

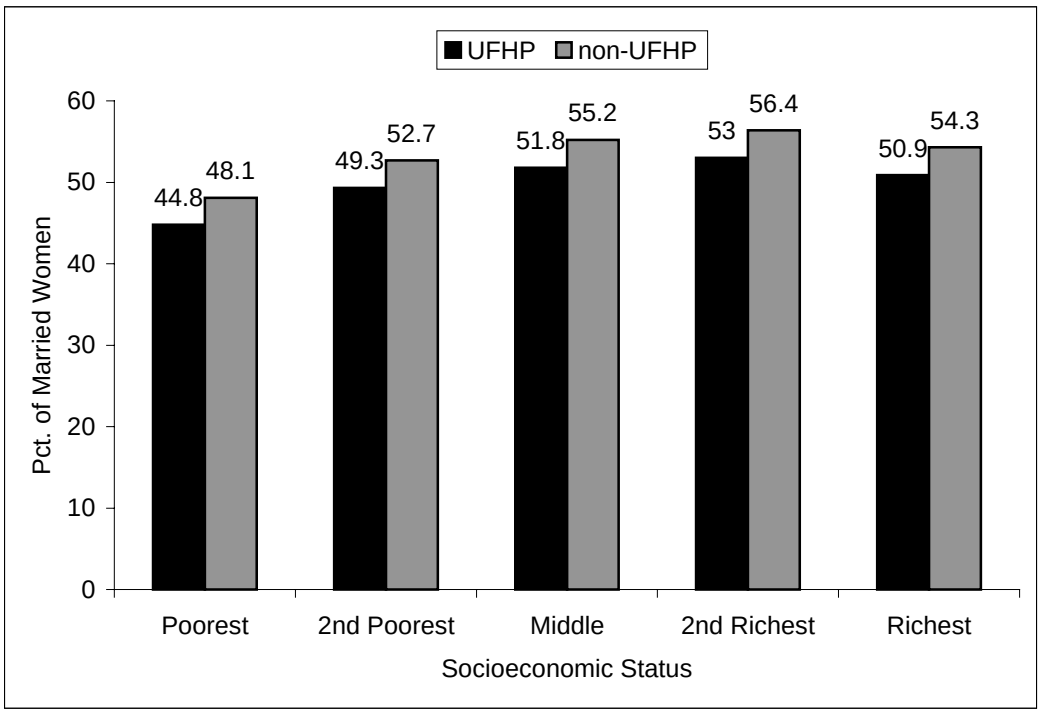
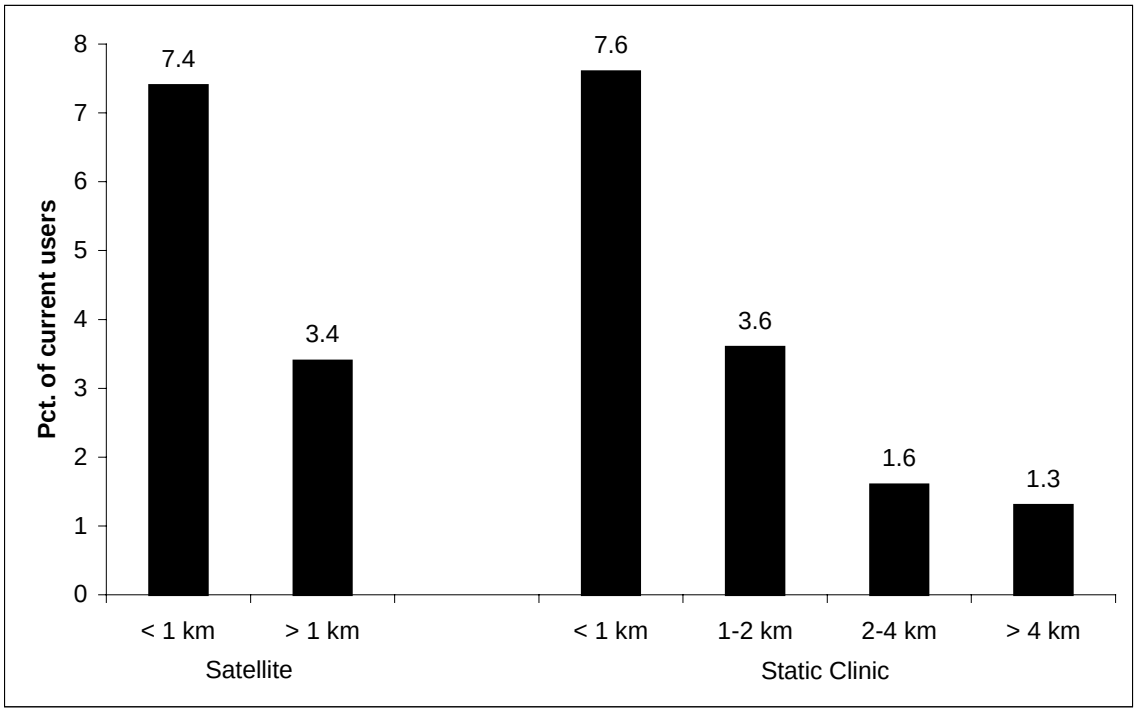


Figure 4.2 Simulated Effects of Distance on Use of UFHP Satellite and Static Clinics



Antenatal Care

As noted in the 2001 UFHP Evaluation Survey Preliminary Report, much of the increase in use of antenatal care from 1998 to 2001 was associated with an increase in use of antenatal care at UFHP clinics. In 1998, 7.3 percent of women with a live birth in the year preceding the survey reported using UFHP clinics – static and satellite – for antenatal care. In 2001, this proportion rose to 17.7 percent of women with a live birth. This increase was larger than for any other type of health care provider, many of which also experienced increases in use.

A principal question of the impact evaluation is therefore what has produced this increase at UFHP clinics relative to other types of providers? This section explores what factors may have influenced antenatal care use and use of specific types of UFHP facilities in 2001 Table 4.3 presents probit estimation results for three dependent variables: (1) overall antenatal care use, (2) use of UFHP satellite clinics for antenatal care, and (3) use of UFHP static clinics for antenatal care.

The first estimation, use of any antenatal care among women with a live birth in the past year, indicates that individual characteristics dominate decisions to use antenatal care, rather than proximity to providers. The proximity results for UFHP clinics are, in fact, negligible. For neither satellite clinics nor static clinics is the distance from the cluster to the clinic a significant determinant of whether a woman uses antenatal care.

The individual factors of greatest import are socioeconomic status and education levels. For example, controlling for all other factors, women in the lowest socioeconomic quintile are 14 percentage points less likely to use antenatal care than women in the highest socioeconomic quintile (Figure 4.3). Women without any formal education are 29 percentage points less likely to use antenatal care than women with a secondary level education and 21 percentage points less likely than women with a primary level education (Figure 4.4). The effects of husband's education are considerably smaller; women are 8 to 9 percentage points more likely to use antenatal care if their husbands have a primary or secondary level of education relative to having none.

The probit estimations for determinants of use of UFHP Satellite Clinics and Static Clinics indicate that more proximate clinics – and to some extent higher quality clinics - are more likely to be used for antenatal care.[3] For example, being within 1 kilometer of a UFHP satellite clinic increases the likelihood that it will be used by approximately 10 percentage points relative to being beyond 1 kilometer (Figure 4.5). Similarly, women who are within 1 kilometer of a UFHP static clinic are approximately 13 percentage points more likely to use the static clinic than women living 2 to 5 kilometers from the static clinic. An extra satellite clinic session per month would also have a positive effect on antenatal care, increasing the likelihood that UFHP satellite clinics would be used by 2 percentage points.

[3] Chi-squared tests indicate that facility characteristics are jointly significant determinants of use of satellite clinics and static clinics at greater than the 10 percent level.

Other UFHP static and satellite clinic characteristics have little measurable impact on use of the clinics. A 5 taka increase in the price of antenatal care would decrease the use of UFHP satellite clinics by less than 0.1 percent. An increase in the availability of services at UFHP static clinics – an additional 3 services from a mean of 22 services – would increase the use of UFHP static clinics by 2 percentage points.

Individual characteristics such as socioeconomic status and education have no statistically significant relationship with the use of UFHP static and satellite clinics.

Table 4.3 Probit Estimations of Use of Antenatal Care and Use of UFHP Providers for Antenatal Care (Women with live birth in last year)

Independent Variables	Antenatal Care Coef	Z	Static Clinic Coef	Z	Satellite Clinic Coef	Z
Age (omitted=10-19)						
20-24	-0.104	-0.66	0.264	1.33	-0.277	-1.59
25-29	-0.088	-0.46	-0.042	-0.19	-0.350	-1.47
30-34	-0.179	-0.83	-0.152	-0.48	0.171	0.65
35-49	-0.530	-2.02	-0.624	-1.48	-0.949	-1.74
Mother's Education						
Primary	0.716	4.68	-0.023	-0.10	0.139	0.65
Secondary or above	1.191	6.95	-0.190	-0.79	-0.251	-1.06
Husband's Education						
Primary	0.336	2.16	-0.149	-0.48	-0.169	-0.63
Secondary or above	0.388	2.53	0.343	1.46	-0.569	-2.50
Quintile (omitted='poorest')						
2nd poorest	0.429	2.37	0.354	1.36	0.159	0.54
Middle	0.634	2.88	-0.059	-0.21	0.247	0.81
2nd richest	0.546	2.64	0.040	0.14	-0.240	-0.71
Richest	0.566	2.27	-0.108	-0.31	-0.219	-0.68
Urban (omitted='city')						
District	0.220	0.98	-0.208	-0.90	-0.526	-2.17
Thana	0.177	0.80	0.272	1.11	-0.380	-1.22
Distances						
Hospital 0-1 km	-0.007	-0.02				
Hospital 2-5 km	-0.081	-0.21				
THC 0-1 km	0.345	1.07				
THC 2-5 km	0.001	0.00				
FWC 0-1 km	0.390	1.68				
FWC 2-5 km	0.414	2.15				
UFHP Static 0-1 km	0.030	0.08	0.948	2.02		
UFHP Static 1-2 km	0.289	0.76				
UFHP Static 2-4 km	-0.291	-0.81				
UFHP Static 2-5 km			0.808	1.74		
NGO Clinic 0-1 km	0.068	0.14				
NGO Clinic 2-5 km	-0.011	-0.02				
UFHP Satel. 0-1 km	-0.074	-0.46			1.198	3.16
NGO Satel 0-1 km	-0.340	-1.99				
NGO Satel 2-5 km	-0.172	-0.86				
Project Area	-0.223	-1.12	0.471	1.87	0.135	0.56
Static Clinic						
Equipment			0.0027	0.17		
Total Staff			0.0224	1.4		
Services			0.0479	0.94		
Price ANC			0.0139	1.14		
Satellite Clinic						
Experience					0.099	1.23
Sessions					0.029	2.38
Services					-0.04	-0.83
Price ANC					-0.02	-0.94
Intercept	-0.309	-0.98	-4.3116	-5.24	-1.5	-1.78
Obs	713		556		547	
Wald chi2(29)	253.84		47.74		71.09	
Pseudo R2	0.245		0.097		0.168	
Test Quintiles						

Chi2(4)	12.56	0.013	3.79	0.435	2.67	0.44
Test Clinic			7.84	0.098	8.17	0.086

Figure 4.3 Simulated Effects of Socioeconomic Status on Use of Any Antenatal Care Provider, UFHP and non-UFHP areas (Women with live birth in last year)

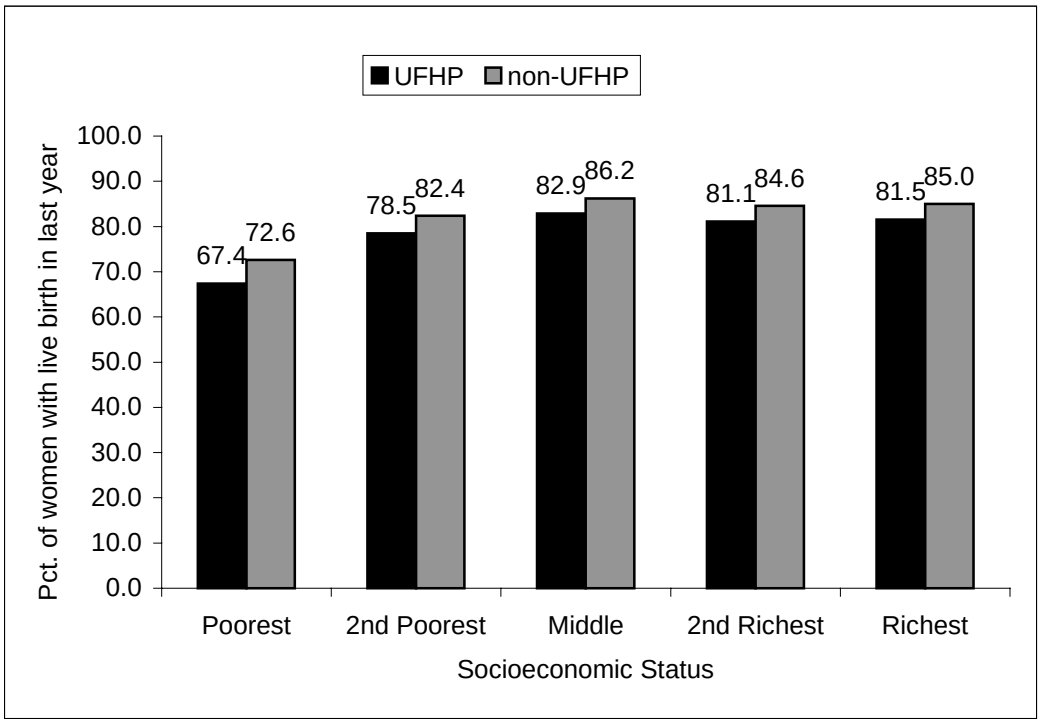


Figure 4.4 Simulated Effects on Antenatal Care Use (Women with live birth in last year)

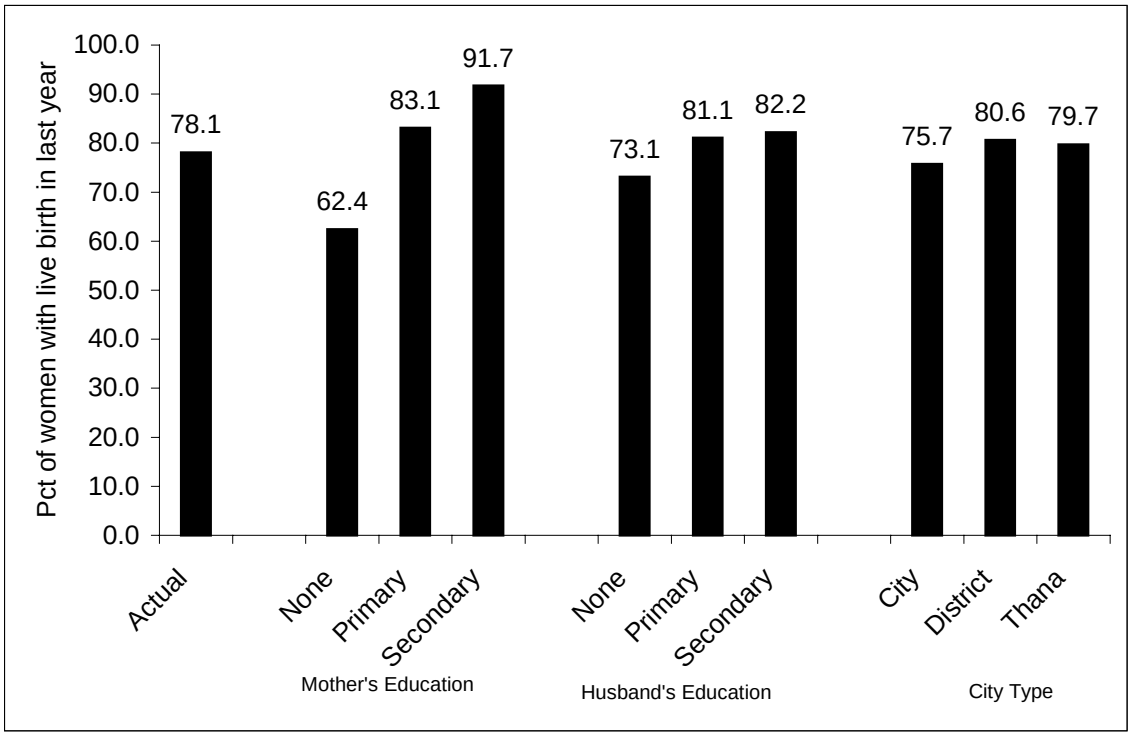
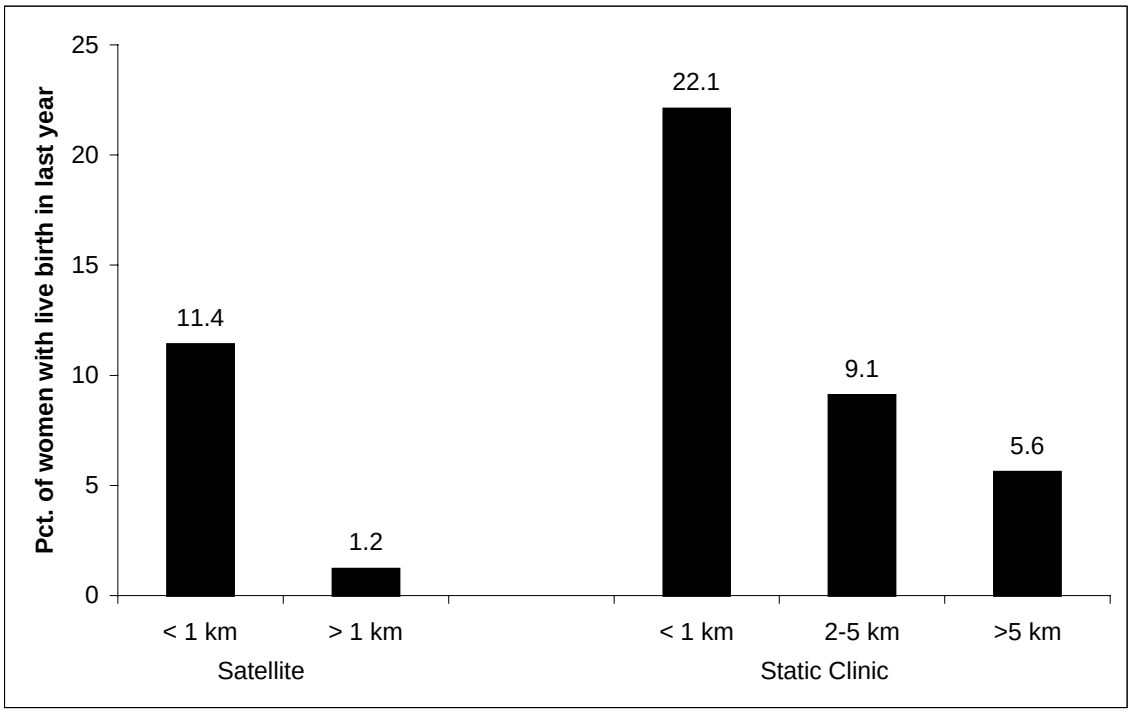


Figure 4.5 Simulated Effects of Distance to UFHP Static and Satellite Clinics on Use of UFHP Clinics (Percentage of Women with live birth in last year)



Child Health

Probit estimations examine factors associated with whether or not children aged 12 to 35 months received specific childhood vaccinations. The effects of the project are measured by two main sets of variables – categorical variables for proximity to UFHP static and satellite clinics and a dummy variable for being in a project area or not. These estimations find very little project impact on childhood vaccinations. None of the UFHP proximity variables are statistically significant predictors of childhood immunizations nor in any case is the project dummy variable positively associated with vaccination status. In fact, for DPT3 and measles, being in project areas is associated with a lower likelihood of being vaccinated.

On the other hand, there is little indication that socioeconomic status has much impact on vaccinations. Relative to children in the lowest asset quintile, children in all asset quintiles are equally likely to be vaccinated. With the exception of the TB vaccination, girls are as likely to be vaccinated as boys. Educational status – of both mothers and fathers – is positively associated with children's vaccination status.

Table 4.4 Probit Estimations of Childhood Immunizations, Age 12-35 months, UFHP and non-UFHP Areas

Independent Variables	DPT3		Measles		Polio		BCG	
	Coef	Z	Coef	Z	Coef	Z	Coef	Z
Age 24-35 months	-0.142	-1.88	0.146	1.89	-0.082	-1.11	-0.229	-2.15
Female	-0.005	-0.07	-0.026	-0.36	-0.040	-0.56	-0.308	-2.72
Age								
20-24	0.021	0.19	0.043	0.38	0.084	0.80	0.048	0.29
25-29	0.041	0.38	0.150	1.30	0.080	0.68	0.076	0.48
30-34	0.045	0.36	0.018	0.13	0.159	1.27	-0.168	-0.87
35-49	0.009	0.06	0.047	0.28	0.116	0.69	-0.025	-0.12
Mother's Education								
Primary	0.246	2.75	0.263	2.60	0.362	4.09	0.667	4.63
Secondary or above	0.574	5.10	0.870	6.80	0.633	5.69	0.856	4.38
Husband's Education								
Primary	0.258	2.53	0.256	2.56	0.368	3.42	0.438	2.63
Secondary or above	0.379	3.72	0.484	4.12	0.435	4.52	0.272	1.72
Quintile (omitted='poorest')								
2nd poorest	-0.022	-0.17	0.081	0.63	0.121	1.12	0.027	0.19
Middle	0.085	0.57	0.027	0.18	-0.123	-0.92	-0.420	-2.60
2nd richest	0.177	1.21	0.085	0.63	0.300	2.37	-0.093	-0.54
Richest	0.158	0.99	0.199	1.22	0.131	0.96	0.127	0.59
Urban (omitted='city')								
District	-0.067	-0.47	0.118	0.96	-0.010	-0.08	-0.263	-1.67
Thana	0.145	1.05	0.011	0.08	-0.092	-0.76	-0.463	-2.54
Distances								
Hospital 0-1 km	-0.071	-0.30	-0.414	-1.97	-0.136	-0.77	-0.373	-1.20
Hospital 2-5 km	-0.138	-0.65	-0.287	-1.48	-0.172	-1.11	-0.447	-1.64
THC 0-1 km	0.181	0.87	0.166	1.01	0.018	0.12	0.395	1.97
THC 2-5 km	0.129	0.73	0.165	1.32	0.144	1.17	0.451	2.78
FWC 0-1 km	-0.191	-1.26	-0.014	-0.09	0.076	0.52	-0.189	-0.96
FWC 2-5 km	-0.504	-4.01	-0.265	-2.29	-0.208	-1.70	-0.321	-1.87
UFHP Static 0-1 km	0.120	0.51	0.108	0.55	0.116	0.69	0.152	0.74
UFHP Static 1-2 km	0.032	0.13	0.121	0.62	0.187	1.08	0.278	1.31
UFHP Static 2-4 km	0.135	0.54	0.137	0.64	0.297	1.46	0.169	0.71
NGO Clinic 0-1 km	0.045	0.15	0.248	0.87	0.220	0.83	0.262	0.93
NGO Clinic 2-5 km	0.153	0.51	0.103	0.35	0.101	0.38	0.190	0.68
UFHP Satel. 0-1 km	0.062	0.53	0.062	0.46	0.022	0.17	0.070	0.49
NGO Satel 0-1 km	0.371	3.09	0.260	2.25	0.087	0.73	0.019	0.13
NGO Satel 2-5 km	0.296	2.02	0.140	1.04	-0.001	-0.01	0.113	0.60
Project Area	-0.217	-1.71	-0.220	-1.96	-0.029	-0.25	0.088	0.61
Intercept	0.151	0.48	-0.155	-0.55	-0.098	-0.32	1.168	3.01
Obs	1512		1512		1596		1512	
Wald chi2(31)	154.7		201.51		186.5		132.2	
Pseudo R2	0.108		0.1511		0.111		0.185	
Chi2 Tests								
Quintiles								
Chi2(4)	2.83	0.58	1.92	0.75	11.11	0.25	13.34	0.01
Static Distance								
Chi2(3)	1.15	0.765	0.45	0.93	2.6	0.457	2.14	0.54

In order to examine what factors affected whether children received vaccinations from UFHP providers, probit estimations were undertaken in which the dependent variable was whether or not a child received a vaccine from a UFHP static clinic, a UFHP satellite clinic or a joint UFHP/GOB vaccination session.

Table 4.5 shows that use of UFHP clinics for immunization services was largely unrelated to socioeconomic status. Table 4.5 also shows that older children were less likely to receive vaccinations from UFHP clinics relative to children aged 12 to 23 months, indicating increasing use of UFHP clinics over the more recent past, or at least over the period 12 to 23 months prior to the survey. There is no difference in the likelihood of using a UFHP clinic for vaccinations between boys and girls or by parental educational levels. Children in district municipalities were less likely to use UFHP clinics relative to children inside city corporation limits.

No characteristics of UFHP static clinics were associated with greater likelihoods of use. This is indicated by the paucity of statistically significant coefficients for specific facility characteristics in the probit estimations. Results were slightly better for UFHP satellite clinics. Being within 1 kilometer of a UFHP satellite clinic increases the likelihood that it will be used for DPT3 by approximately 11 percentage points from 13.8 percent to 25.1 percent. Increasing service availability at satellite clinics would increase use by approximately 2 percentage points.

In the estimations, higher prices do not seem to deter use of UFHP static or satellite clinics. An increase of 5 taka in the price of vaccinations at UFHP static clinics would reduce DPT3 vaccinations by 2 percentage points.

Table 4.5 Probit Estimations of Use of UFHP Facilities for Immunizations

Independent Variables	DPT3		Measles		Polio		BCG	
	Coef	Z	Coef	Z	Coef	Z	Coef	Z
Age 24-35 months	-0.182	-2.39	-0.212	-2.62	-0.209	-2.72	-0.170	-2.09
Female	0.070	0.85	0.059	0.66	0.055	0.65	0.098	1.22
Age								
20-24	0.140	1.26	0.164	1.29	0.085	0.76	0.078	0.73
25-29	0.042	0.33	0.068	0.50	-0.044	-0.36	0.027	0.22
30-34	0.005	0.04	0.035	0.25	-0.056	-0.44	-0.018	-0.14
35-49	0.027	0.16	0.096	0.47	-0.087	-0.49	0.077	0.47
Mother's Education								
Primary	0.070	0.62	-0.025	-0.19	0.062	0.55	0.087	0.81
Secondary or above	0.079	0.60	-0.063	-0.44	0.062	0.49	0.017	0.13
Husband's Education								
Primary	0.105	0.99	0.140	1.11	0.067	0.65	0.074	0.74
Secondary or above	-0.051	-0.43	-0.044	-0.32	-0.103	-0.91	-0.131	-1.09
Quintile (omitted='poorest')								
2nd poorest	0.252	1.21	0.268	1.38	0.231	1.11	0.210	0.97
Middle	0.081	0.34	0.102	0.45	0.044	0.18	0.070	0.28
2nd richest	0.326	1.43	0.343	1.68	0.277	1.20	0.246	1.05
Richest	0.296	1.20	0.428	1.83	0.302	1.24	0.236	0.94
Urban (omitted='city')								
District	-0.556	-2.68	-0.463	-2.26	-0.513	-2.46	-0.486	-2.37
Thana	-0.349	-1.75	-0.116	-0.57	-0.354	-1.82	-0.224	-1.16
Static Clinic								
Distance 0-1 km	0.215	0.81	0.284	1.05	0.271	1.03	0.309	1.14
Distance 1-2 km	0.022	0.08	0.079	0.29	0.090	0.33	0.155	0.54
Distance 2-4 km	0.309	0.98	0.481	1.53	0.399	1.30	0.388	1.22
Price immunization	-0.024	-1.38	-0.025	-1.44	-0.027	-1.64	0.461	2.37
Equipment	0.018	1.34	0.012	0.83	0.015	1.12	0.000	0.01
Total Staff	0.011	0.82	0.013	1.03	0.010	0.78	0.014	0.99
Services	0.017	0.51	0.026	0.78	0.026	0.77	0.011	0.88
Satellite Clinic								
Distance 0-1 km	0.445	2.42	0.547	3.07	0.495	2.74	0.020	0.60
Price immunization	-0.015	-0.87	-0.002	-0.15	-0.015	-0.95	-0.024	-1.46
Experience	0.025	0.49	-0.017	-0.34	0.018	0.37	0.046	0.95
Sessions	0.006	0.58	0.006	0.58	0.013	1.44	0.016	1.75
Services	0.011	2.91	0.013	3.08	0.009	2.52	0.009	2.56
Project Area	0.468	2.71	0.342	1.94	0.484	2.94	0.535	3.11
Intercept	-2.734	-4.61	-2.882	-4.78	-2.801	-4.62	-2.994	-5.20
Obs	1329		1148		1349		1401	
Wald chi2(29)	104.02		98		111.69		101.08	
Pseudo R2	0.077		0.079		0.083		0.083	
Test Quintiles								
Chi2(4)	3.22	0.522	4.84	0.304	3.11	0.54	1.91	0.75
Static Clinic								
Distance	2.75	0.431	4.62	0.202	3.26	0.35	2.53	0.47
Characteristics	5.84	0.016	8.84	0.065	10.3	0.036	7.18	0.127
Satel Clinic	10.71	0.03	10.71	0.03	10.27	0.04	12.91	0.01

As noted in the 2001 UFHP Survey Report, the DPT and polio dropout rates were 19 percent and 21 percent respectively. Probit estimations examine the factors associated with children not receiving the full regimen of DPT and polio vaccinations (Table 4.6).

Proximity to UFHP satellite clinics – being within 1 kilometer - increases the likelihood that a child will complete the full three polio vaccinations. Other factors, such as parental secondary education, are also associated with an increased likelihood of completing vaccinations.

Table 4.6 Probit Estimations of DPT and Polio Dropouts

Independent Variables	DPT3		Polio	
	Coef	Z	Coef	Z
Age 24-35 months	0.133	1.63	-0.166	-1.07
Female	-0.093	-1.06	-0.022	-0.15
Age				
20-24	-0.073	-0.65	-0.110	-0.57
25-29	-0.095	-0.81	0.036	0.19
30-34	-0.181	-1.35	-0.344	-1.70
35-49	-0.147	-0.87	-0.517	-1.50
Mother's Education				
Primary	-0.084	-0.84	-0.255	-1.36
Secondary or above	-0.392	-3.26	-0.625	-2.61
Husband's Education				
Primary	-0.229	-1.96	-0.034	-0.17
Secondary or above	-0.334	-3.07	-0.359	-1.57
Quintile (omitted='poorest')				
2nd poorest	0.112	0.76	0.112	0.45
Middle	-0.149	-0.95	0.316	1.23
2nd richest	-0.146	-0.87	-0.126	-0.50
Richest	-0.056	-0.33	0.024	0.09
Urban (omitted='city')				
District	0.015	0.09	-0.256	-0.96
Thana	-0.253	-1.59	-0.262	-0.88
Distances				
Hospital 0-1 km	-0.076	-0.32	0.095	0.25
Hospital 2-5 km	0.000	0.00	0.050	0.16
THC 0-1 km	0.019	0.08	0.217	0.60
THC 2-5 km	0.069	0.32	0.032	0.10
FWC 0-1 km	0.173	1.05	0.023	0.08
FWC 2-5 km	0.510	3.62	0.497	1.96
UFHP Static 0-1 km	-0.177	-0.70	-0.372	-1.01
UFHP Static 1-2 km	-0.026	-0.10	-0.398	-1.04
UFHP Static 2-4 km	-0.124	-0.46	-0.394	-1.05
NGO Clinic 0-1 km	0.122	0.39	-0.087	-0.22
NGO Clinic 2-5 km	-0.089	-0.31	-0.143	-0.42
UFHP Satel. 0-1 km	-0.083	-0.68	-0.474	-2.36
NGO Satel 0-1 km	-0.445	-3.33	-0.437	-1.68
NGO Satel 2-5 km	-0.376	-2.27	-0.037	-0.13
Project Area	0.225	1.58	0.308	1.17
Intercept	-0.459	-1.47	-0.381	-0.77
Obs	1388		698	
Wald chi2(31)	106.88		83.3	
Pseudo R2	0.084		0.17	
Tests				

Quintiles	3.55	0.47	2.73	0.60
Static Distance	2.00	0.57	1.27	0.74

As with childhood immunizations, the project appears to have little impact on vitamin A consumption by children and on reduced likelihood of illness (Table 4.7). Individuals who are within 1 kilometer of a UFHP satellite clinic are actually less likely to receive vitamin A than children living farther away. Children within 4 kilometers of a UFHP static clinic are more likely to report symptoms of ARI, as are children in UFHP project areas generally.

At the household level, children in the higher asset quintiles are less likely to have symptoms of ARI or diarrhea, but equally likely to receive ORS/laban gur as children in lower asset quintiles. Children of mothers with secondary level education or above are more likely to receive vitamin A. Boys and girls are generally equally likely to receive vitamin A and to have symptoms of ARI and diarrhea.

Table 4.7 Probit Estimations of Child Health

Independent Variables	Vitamin A Coef	Z	ARI Coef	Z	Diarrhea Coef	Z	ORS/Laban Gur Coef	Z
Age (omitted=0-23 mos)								
24-35 months	0.738	11.53	-0.138	-2.05	-0.155	-1.54	0.334	0.99
36-47 months	0.565	8.66	-0.339	-4.96	-0.124	-1.32	0.254	0.82
48-59 months	0.551	8.90	-0.417	-5.32	-0.235	-2.47	1.004	2.70
Female	0.068	1.47	-0.147	-1.86	0.012	0.19	-0.303	-1.23
Age								
20-24	0.145	1.99	-0.200	-2.41	-0.170	-1.57	-0.184	-0.48
25-29	0.199	2.69	-0.276	-2.75	-0.129	-1.16	0.168	0.50
30-34	0.322	3.42	-0.076	-0.74	-0.222	-1.80	-0.743	-1.92
35-49	0.309	2.78	-0.025	-0.37	0.007	0.06	-0.135	-0.32
Mother's Education								
Primary	0.137	1.97	-0.191	-2.13	0.091	1.01	0.281	0.93
Secondary or above	0.347	4.93	-0.041	-0.54	-0.211	-1.89	0.123	0.32
Husband's Education								
Primary	0.005	0.08	-0.071	-0.91	0.110	1.29	0.018	0.06
Secondary or above	-0.004	-0.05	-0.060	-0.64	-0.057	-0.61	0.480	1.39
Quintile (omitted='poorest')								
2nd poorest	-0.127	-1.37	-0.208	-1.81	-0.128	-1.12	-0.157	-0.46
Middle	-0.178	-1.67	-0.143	-1.20	-0.145	-1.34	-0.527	-1.55
2nd richest	-0.005	-0.05	-0.343	-2.31	-0.283	-1.88	-0.158	-0.45
Richest	-0.073	-0.67	-0.077	-1.56	-0.351	-2.52	0.409	0.75
Urban (omitted='city')								
District	0.036	0.34	-0.091	-0.79	0.110	0.80	0.091	0.27
Thana	0.057	0.54	-0.247	-1.77	-0.214	-1.43	0.039	0.10
Distance								
Hospital 0-1 km	-0.023	-0.14	-0.117	-0.61	-0.022	-0.09	-0.476	-0.78
Hospital 2-5 km	-0.127	-0.81	-0.142	-0.84	-0.019	-0.08	0.379	0.73
THC 0-1 km	-0.100	-0.69	-0.078	-0.52	-0.273	-1.48	-1.010	-1.68
THC 2-5 km	-0.069	-0.58	0.044	0.34	-0.276	-1.79	-1.169	-2.35
FWC 0-1 km	0.007	0.08	-0.005	-0.04	0.394	2.83	0.152	0.41
FWC 2-5 km	-0.213	-2.43	0.112	1.06	0.233	2.25	0.070	0.21
UFHP Static 0-1 km	-0.094	-0.67	0.278	1.70	-0.014	-0.07	-0.138	-0.24
UFHP Static 1-2 km	0.051	0.37	0.299	1.82	-0.006	-0.03	0.077	0.13
UFHP Static 2-4 km	-0.032	-0.21	0.238	1.42	-0.018	-0.08	-0.357	-0.62
NGO Clinic 0-1 km	0.012	0.05	-0.083	-0.46	0.300	1.08	0.489	0.56
NGO Clinic 2-5 km	-0.105	-0.48	-0.063	-0.40	0.462	1.78	0.332	0.38
UFHP Satel. 0-1 km	-0.183	-1.84	-0.121	-1.20	-0.126	-1.22	-0.602	-1.57
NGO Satel 0-1 km	0.180	1.98	-0.042	-0.39	0.191	1.82	0.723	2.13
NGO Satel 2-5 km	0.103	1.03	-0.082	-0.60	0.047	0.36	0.309	0.78
Project Area	-0.013	-0.15	0.357	3.53	-0.008	-0.08	-0.073	-0.26
Intercept	0.290	1.69	-0.636	-3.28	-1.481	-6.51	1.378	1.92
Obs	3664		3664		3664		205	
Wald chi2(33)	349.1		127.84		96.36		51.32	
Pseudo R2	0.072		0.049		0.049		0.18	
Tests								
Quintiles	4.65	0.325	7.49	0.112	7.3	0.12	4.75	0.314
Static Distance	3.76	0.288	3.38	0.337	0.01	0.99	1.61	0.658

Bibliography

Filmer, Deon and Lant Pritchett. 1988. Estimating Wealth Effects without ExpenditureData – or Tears: An Application to Educational Enrollments in States of India, World Bank Policy Research Working Paper No. 1994. Washington, D.C.: Development Economics Research Group (DECRG), The World Bank.

Gwatkin, Davidson, Shea Rustein, Kiersten Johnson, Rohini Pande, and Adam Wagstaff. 2000. Socio-economic Differences in Health, Nutrition and Population in Bangladesh, HNP/Poverty Thematic Group, Washington, D.C.: The World Bank.

Mitra and Associates and MEASURE Evaluation. 2003. 2001 Urban Family Health Partnership Evaluation Survey. Dhaka, Bangladesh.

Appendix 1. Selection of Facilities

A detailed protocol was employed for collecting the community, facility, and satellite clinic information. During household listing visits to communities, listing teams identified 3-6 community respondents who could be interviewed in a group for the village/mohalla questionnaire. It was intended that the community respondents include at least one educator, at least one female community leader, and several local government officials.

During the village/mohalla interview, respondents identified the different sources of health services known to be available in the area and field supervisors obtained approximate distances from the communities to the health service sources. After the village/mohalla questionnaire was completed, a list of facilities was completed for the cluster. The facility survey teams in the cluster then visited the UFHP static clinic in the cluster and asked the facility manager to review the map of the Thana depicting the location of the static clinic and the catchment area. In general, this map also showed other health facilities in the Thana. The survey team compared the list of facilities identified by the community respondents to the facilities presented in the Thana map to identify facilities that were not mentioned by the community respondents but that were located in the Thana. The list was completed with that additional information. A list of facilities form was prepared for every cluster.

The procedure to identify the relevant facilities and the selection for the facility survey varied according to the type of facility:

For *Hospitals,* the closest was identified. If it was within 30 kilometers, it was visited.

Each *Thana Health Complex* in a thana was visited regardless of distance. If there was a closer Thana Health Complex located in a different thana, it was also visited, if mentioned in the Village/Mohalla questionnaire.

For *Maternal and Child Health Centers (MCWCs),* and *Family Welfare Centers (FWCs),* the closest of each type was identified. If the closest facility was located in a different mohalla than the cluster, then the facility in the cluster's mohalla was also identified. A maximum of two facilities for each type could be identified and selected for the facility survey visit. For FWCs, the closest one regardless of the distance to the cluster was visited. For MCWC, the closest one was visited if the distance was less than 10 km.

One *UFHP static clinic* was identified per cluster (in intervention areas) and visited regardless of distance.

For *Private clinics, Other NGO clinics, and Government of Bangladesh Community Clinics,* all those known to be available to the people in the cluster (up to a maximum of four for each type) were obtained, including names and approximate distances. The nearest three of each type were visited, unless they were beyond 10 kilometers.

For *Satellite Clinics* (UFHP, other NGO or Government), all satellite clinics known to be available or that provide services in the cluster were identified with their names and approximate distances. All satellite clinics located within 1 mile from the cluster were selected as those to be visited by facility survey teams. If none were located within 1 mile, the closest of each type (NIPHP, other NGO or Government) was visited regardless of distance.

For *Pharmacies, private allopathic doctors, homeopathic doctors and traditional doctors/village practitioners/ayurvedic/unani doctors,* there was a set of questions in the village/mohalla questionnaire to identify their presence and number in the surrounding area. The distance to the closest one of each type was recorded. However, these were not selected for the facility survey visit.

For *FWAs*, there was a set of questions to identify their presence in the cluster, and the nearest to the cluster was visited.

Table A.1. provides a summary of the selection strategy.

Satellite Clinics: Because the satellite clinic sessions occurred only once per week or once per month, it was unlikely that the timing of the visit by survey teams corresponded to the day when a particular satellite clinic was open. However, facility survey teams went to the satellite clinic locations and collected information on the physical appearance of the satellite clinic and took GPS coordinates. In most cases, the remainder of the satellite clinic questionnaire was completed elsewhere with the actual satellite clinic worker, either at the static clinic or the worker's home.

Health Workers: Health workers were selected for interview at FWCs, MCWCs, NGO clinics, private clinics, UFHP static clinics, community clinics and rural dispensaries. Only those workers involved in providing ESP services were interviewed. In facilities with fewer than 5 ESP workers, all ESP workers were identified and given the Health Worker Questionnaire. For facilities with 5 or more ESP workers, one of each staff type was identified and given the Health Worker Questionnaire. The lowest level of health worker to be interviewed was the Health Assistant. Clinic Aides were not interviewed.

Table A.1. Selection of Facilities for Interview

Criteria for selection of health facility types to be interviewed, survey instrument used, and selection of health staff for interview							
	Sources	Frequency	Identified in Community Questionnaire	Number Selected for Interview	Questionnaire	Staff for WORKER Questionnaire	
						Number In post	Number selected for Interview
01	Hospitals	1/district	1-2	closest 1-2, within 30 km	HOSPITAL		0
02	Thana Health Complexes	1/thana	1-2	1-2, at least 1	FACILITY		0
03	FWCs	1/union	1-2	1-2, at least 1	FACILITY	1-2	All
04	MCWCs	1-2/district	1-2	1-2, at least 1	FACILITY	2-3	All
05	NIPHP Static Clinics	1/thana	1-2	1-2, at least 1	FACILITY	4-5	*
06	Private Clinics	several	All	Nearest 3, at least 1 if < 10 kms.	FACILITY	4-5	*
07	Other NGO Clinics	several	All	Nearest 3, at least 1 if < 10 kms.	FACILITY	4-5	*
08	Community Clinics	several	All	Nearest 3, at least 1 if < 10 kms.	FACILITY	1-2	All
09	Rural Dispensaries	several	All	Nearest 3, at least 1 if < 10 kms.	FACILITY	1-2	
10	Satellite Clinics	several	All	All if < 1 mile, at least 1 per type	SATELLITE	1-2	All
11	Depotholders	1/village	All	All if < 1 mile, at least 1	DEPOT-HOLDER	1	1 per village
12	FWV/FWA	several	Special Question	Closest, at least 1 per cluster	WORKER	1	1
	Pharmacies	several	Special Question	No			
	Doctors' Offices (allopathic MBBS)	several	Special Question	No			
	Village Practitioners (homeopathic & ayurvedic/unani)	several	Special Question	No			

* If number of ESP staff > 5, selected sample of one per type; If number of ESP staff <= 4, all interviewed.