



Improving Access and Efficiency in Public Health Services: Mid-Term Evaluation of India's National Rural Health Mission

Evaluation of NRHM: Sample Survey of CHCs and PHCs

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Book Title: Improving Access and Efficiency in Public Health Services: Mid-Term Evaluation of India's National Rural Health Mission

Chapter Title: "Evaluation of NRHM: Sample Survey of CHCs and PHCs"

Pub. Date: 2010

Access Date: August 6, 2020

Publishing Company: SAGE Publications India Pvt Ltd

City: New Delhi

Print ISBN: 9788132104582

Online ISBN: 9788132107873

DOI:

Print pages: 38-49

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Evaluation of NRHM: Sample Survey of CHCs and PHCs

IN [CHAPTER 4](#), we used a large amount of quantitative data from several secondary sources including the official NRHM-MIS to review the performance of NRHM so far. Numerous indicators of health inputs, outputs and outcomes were used to assess the impact of NRHM on the rural Indian health scene. This assessment expectedly had to be largely quantitative in nature. The last section on multi-variate analysis of selected health output and outcome indicators with major interventions envisaged under NRHM threw some unexpected and perverse signs with statistical significance. In order to gain better insight into the working of NRHM on the ground level, qualitative aspects generally not captured in the aggregate macro data reported in secondary sources including NRHM-MIS need to be looked into. With this objective in mind, we decided to conduct some specifically targeted field surveys on sample basis given both the time and cost constraints.

1. The Sample Survey Design

It was decided to concentrate on the High Focus States (HFS), and there too, on relatively bigger states on geographic and population terms. The choice, therefore, narrowed down to Madhya Pradesh (MP), Rajasthan, and Uttar Pradesh (UP). Even within them, only representative districts were selected to study the NRHM and its components since the design, structure, contents, and major interventions under NRHM are fairly uniform. Thus, we selected Sagar district from MP, Jalore (a desert area) and Chittorgarh (a tribal area) from Rajasthan, and Azamgarh (from eastern parts) and Sitapur (from central parts) from UP. These districts are neither too small nor too large geographically and population-wise. Moreover, they have low rates of urbanization (generally not exceeding 20 percent or so). As per DLHS-3 survey results, Jalore and Chittorgarh from Rajasthan are “medium” performing districts; Sagar from MP is also “medium” performing; while Azamgarh is high performing and Sitapur is low performing districts from UP.

In order to get a good representative idea about the progress and performance of NRHM, it was decided to survey the District Program Management Unit (DPMU), three to four CHCs located in different blocks, eight to nine PHCs from the selected CHCs, six to 10 sub-centers again from the selected PHCs, 17 to 23 ASHAs from villages covered under selected sub-centers, and eight to 11 village community members representing VHSC, PRI or RKS from the same village in each state. Considering the sheer size of UP both in geography and population, it is considered almost equivalent to two normal size states. [Table 5.1](#) provides the number of units selected for in-depth study.

Table 5.1 Units Selected for Sample Survey by States

Units		Rajasthan		Madhya Pradesh	Uttar Pradesh	
		Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur
1.	DPMU	0	1	1	1	1
2a.	CHC	1	3	3	4	3
2b.	PHC	4	4	9	8	6
3.	SC/ANM	4	7	10	11	10
4.	ASHA	5	12	19	19	23
5.	VHSC/PRI/RKS Members	3	5	11	11	11
Total		49		53	54	54

Source: Sample survey for this study.

For each of the five categories given in [Table 5.1](#), we had a separate questionnaire. For CHC and PHC a common questionnaire was used (see [Appendix 2](#)). These questionnaires were filled up personally by a select team of three investigators from IIMA who were supported by a couple of local individuals in each district during February-March 2009. All the three investigators were very familiar with the selected districts as well as with the public health system in these three states in general and with NRHM in particular. Since they were involved in the work from the stage of designing the questionnaires, they had the necessary clarity and understanding needed for the job.

2. Survey Results for Health Facilities

Health facilities within a district for rural areas would include CHC, PHC, and SC. DPMU is an administrative unit at the district. [Tables 5.2](#) and [5.3](#) report the survey findings regarding manpower in CHCs and PHCs. It can be seen from the [Table 5.2](#) that only 64 percent of the CHCs in these states had a general practitioner, 43 percent had a physician, 50 percent had a surgeon, 36 percent had a pediatrician, 29 percent had an AYUSH doctor and only 14 percent had an anesthetist. Thus, availability of specialized doctors at CHC level, that is at a block level is far from meeting the Indian Public Health Standards (IPHS) even after NRHM implementation in the high focus states. The situation is equally bad in all the three selected states. This obviously determines the quality of the healthcare services offered in the public health system at the block level.

Table 5.2 Manpower in CHCs

Details	Rajasthan		Madhya Pradesh	Uttar Pradesh		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Total Health Facilities (HFs) visited	1	3	3	4	3	14	100
Number of HFs with General Practitioner	0	0	3	4	2	9	64
Physician	1	1	1	1	2	6	43
Surgeons	0	2	0	2	3	7	50
Gynecologist	1	1	1	1	2	6	43
Pediatrician	0	2	1	1	1	5	36
AYUSH	1	0	1	1	1	4	29
Anesthetist	0	1	0	0	1	2	14
Staff nurse	1	2	3	4	3	13	93
ANM	1	3	2	3	1	10	71
Ward boys	1	2	3	4	1	11	79
HA/LHV (male)	1	1	1	2	2	7	50
HA/LHV (female)	0	1	2	1	2	6	43
Health educator	0	0	0	2	1	3	21
Laboratory technician	1	3	3	4	3	14	100
Radiographer	1	2	3	4	3	13	93
Driver	1	2	3	4	2	12	86
Block program manager	0	1	0	0	2	3	21
Accountant	1	2	2	4	2	11	79
Data assistant (computer manager)	1	2	3	2	2	10	71
Cleaning staff	1	2	2	4	2	11	79
Administrative and other Staff	1	1	1	3	0	6	43
Number of HFs with residence for doctors	1	3	2	4	3	13	93
Number of HFs with residence for nurses	1	3	2	4	2	12	86
Number of HFs with availability of doctors at night	1	3	2	3	3	12	86
Number of HFs with availability of Nurses at night	1	3	2	4	3	13	93
Number of HFs with availability of Attendants at night	0	1	1	4	2	8	57

Source: Our Sample Survey of CHCs.

Table 5.3 Manpower in PHCs

Details	Rajasthan		Madhya Pradesh	Uttar Pradesh		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Total HF visited	4	4	9	8	6	31	100
Number of HF with General Practitioner	4	4	9	7	3	27	87
Physician	0	0	0	0	0	0	0
Surgeon	0	0	0	0	0	0	0
Gynecologist	0	0	0	0	0	0	0
Pediatrician	0	0	0	0	0	0	0
AYUSH	1	2	2	4	4	13	42
Anesthetist	0	0	0	0	1	1	3
Staff nurse	1	4	1	5	2	13	42
ANM	2	3	7	7	5	24	77
Ward boys	3	3	6	8	1	21	68
HA/LHV (male)	2	0	5	1	1	9	29
HA/LHV (female)	4	3	4	6	3	20	65
Health educator	0	0	0	3	0	3	10
Laboratory technician	4	2	1	8	4	19	61
Radiographer	0	0	0	1	0	1	3
Driver	0	0	0	4	1	5	16
Block program manager	0	0	0	0	0	0	0
Accountant	0	0	2	6	2	10	32
Data assistant (computer manager)	0	0	0	3	0	3	10
Cleaning staff	3	3	8	8	2	24	77
Administrative and other staff	2	2	6	7	1	18	58
Number of HFs with residence for doctors	2	2	9	6	5	24	77
Number of HFs with residence for nurses	1	2	9	6	4	22	71
Number of HFs with availability of doctors at night	1	2	7	7	4	21	68
Number of HFs with availability of nurses at night	1	2	6	6	3	18	58
Number of HFs with availability of attendants at night	1	2	7	5	1	16	52

Source: Our Sample Survey of PHCs.

The table also shows inadequacy of the paramedical staff at the CHC level. Out of the total number of CHCs surveyed, 7 percent did not have staff nurse, 29 percent did not have ANM, 21 percent did not have a ward boy, 50 percent did not have a male HA/LHV, and 57 percent did not have a female HA/LHV, 79 percent did not have any health educator, 7 percent did not have a radiographer, and 14 percent CHCs did not have a driver in place. Thus, mere physical existence of CHC without adequate supply of doctors and paramedical personnel cannot be effective in meeting health related needs of people. Poor quality of healthcare at low cost is often equivalent to good quality at high cost for the poor who cannot afford ill-health for long because it affects their earning capacity and thereby their family's livelihood.

[Table 5.2](#) also reveals that even three to four years after implementation of NRHM, 7 percent CHCs do not have doctor's residence and 14 percent do not have residence for nurses. As a result, not all CHCs have round-the-clock service. In 14 percent CHCs a doctor is not available at night and 7 percent do not have nurses at night. Attendants are available at nights only in 57 percent CHCs.

Expectedly, the manpower situation is even worse at the PHC level. [Table 5.3](#) reveals that out of the total PHCs surveyed, 13 percent did not have a doctor and only 42 percent had an AYUSH doctor. NRHM puts heavy emphasis on AYUSH. But on the ground, only 42 percent PHCs and 29 percent CHCs have AYUSH doctors. Only 42 percent PHCs had a staff nurse, 23 percent PHCs did not have any ANM, and 32 percent PHCs did not have a ward boy, 71 percent did not have one male HA/LHV and 35 percent had no female HA/LHV. Only 10 percent of the PHCs had a health educator, and 61 percent PHCs had a laboratory technician. What is of concern is that 23 percent PHCs did not have any cleaning staff. Residence facility to doctors and nurses for PHCs were available at 77 percent and 71 percent PHCs respectively. Round-the-clock availability of doctors, nurses, and attendants at PHCs were respectively 68 percent, 58 percent, and 52 percent. Thus, the quality of healthcare services through measurable criteria of manpower availability at both PHC and CHC levels seems to be far from satisfactory in spite of NRHM being implemented for more than three years.

In terms of the physical infrastructure, our survey reveals a relatively better situation at the CHC and the PHC levels in the three selected states. [Tables 5.4](#) and [5.5](#) provide the information on CHCs and PHCs, respective-

ly. It can be seen from [Table 5.4](#) that in UP, both eastern and central, some of the CHCs are located outside the village which makes them less attractive for deliveries and other emergencies because if villagers have to spend on transport in any case, they can find better facilities without incurring very high cost. Under NRHM, only 36 percent CHCs were upgraded though only 64 percent reported the necessary items of equipment for surgeries after upgradation. CHCs visited in Rajasthan did not have minor operation theatre (OT) and some had general OT. The facility for beds did not exist in 7 percent of CHCs and in 21 percent there was no facility for relatives of patients to sit near the bed. Similarly facility for food to patients simply did not exist in any of the CHCs visited. The linen were washed only once in a week on an average and were replaced once in a year in most cases and twice in a year in some cases.¹ While the general medicines were regularly supplied in all CHCs, the AYUSH medicine was regularly supplied only in 7 percent of the CHCs. Similarly, the consulting rooms for AYUSH doctors were available only in 21 percent CHCs. Thus, the NRHM strategy to mainstream AYUSH seems to have remained largely on paper. In terms of essential infrastructure like electricity, water supply, drinking water, toilet, and round- the-clock delivery, the situation in all CHCs was satisfactory. However, telephone facility did not exist in 29 percent CHCs, all-weather approach road in 21 percent, functional vehicles in 14 percent, linkage with blood bank in 57 percent and medical store in 7 percent of CHC.

Table 5.4 Physical Infrastructure in CHCs

Details	Rajasthan		Madhya Pradesh	Uttar Pradesh		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Number of HFs visited	1	3	3	4	3	14	100
Number of HFs with own building	1	2	3	4	3	13	93
Number of HFs with Building outside village	0	0	0	2	1	3	21
Number of HFs that are upgraded	0	2	3	0	0	5	36
Number of HFs with necessary items of equipment for deliveries	1	3	3	4	3	14	100
Surgeries	1	2	1	2	3	9	64
Average OPD hours	6	6	6	6	6	–	–
Number of HFs where prescribed medicines are available	1	3	3	3	3	13	93
% availability	100	83	–	87	–	–	–
Average frequency of washing of linen (per week)	1	1	2	1	1	–	–
Average frequency of replacement of linen (per year)	1	2	1	2	–	–	–
Number of HFs with regular supply of medicines (general)	1	3	3	4	3	14	100
Number of HFs with regular supply of medicines (AYUSH)	1	0	0	0	0	1	7
Number of HFs with major repair/maintenance /renovations after NRHM	1	3	3	4	3	14	100
Number of HFs with OPD room	1	3	3	4	3	14	100
Consulting rooms (AYUSH)	1	0	1	1	0	3	21
Consulting rooms (specialists)	1	3	2	2	3	11	79
Wards	1	3	3	4	3	14	100
Fully equipped labor room	1	3	3	4	3	14	100
Minor OT	0	0	3	3	3	9	64
General OT	1	2	3	4	3	13	93
Beds	1	3	2	4	3	13	93
Seating facilities for relatives near bed	1	3	1	3	3	11	79
Facility for food	0	0	0	0	0	0	0
Electricity supply	1	3	3	4	3	14	100
Water supply	1	3	3	4	3	14	100
Drinking water	1	3	3	4	3	14	100
Functional generator	1	3	3	3	3	13	93
Toilet	1	3	3	4	3	14	100
24-hour delivery facility	1	3	3	4	3	14	100
Telephone	1	3	3	0	3	10	71
All-weather approach road	0	3	3	2	3	11	79
Functional vehicle(s)	1	3	2	3	3	12	86
Linkage with a blood bank	1	2	1	1	1	6	43
Medicine store	1	3	2	4	3	13	93

Source: Our Sample Survey of CHCs.

Table 5.5 Physical Infrastructure in PHCs

Details	Rajasthan		Madhya Pradesh	Uttar Pradesh		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Number of HFs visited	4	4	9	8	6	31	100
Number of HFs with own building	4	4	9	8	6	31	100
Number of HFs with building outside village	0	1	4	3	3	11	35
Number of HFs that are upgraded	3	1	2	0	0	6	19
Number of HFs with necessary equipment for deliveries	4	4	9	7	2	26	84
Number of HFs with necessary equipment for surgeries	–	–	–	–	0	0	0
Average OPD hours	6	6	6	6	6	–	–
Number of HFs where prescribed medicines are available	4	4	9	8	6	31	100
% availability	68	53	93	90	–	–	–
Average frequency of washing of linen (per week)	1	1	1	1	1	–	–
Average frequency of replacement of linen (per year)	1	1	1	2	–	–	–
Number of HFs with regular supply of medicines (general)	4	4	9	1	5	23	74
Number of HFs with regular supply of medicines (AYUSH)	1	2	2	2	2	9	29
Number of HFs with major repair/maintenance/renovations after NRHM	3	4	9	1	2	19	61
Number of HFs with OPD room	4	4	9	8	6	31	100
Consulting rooms (AYUSH)	1	4	2	0	5	12	39
Consulting rooms (specialists)	–	0	0	0	0	0	0
Wards	4	4	9	8	5	30	97
Fully equipped labor room	4	4	9	7	3	27	87
Minor OT	4	4	9	7	1	25	81
General OT	–	0	2	1	1	4	13
Beds	3	4	7	8	5	27	87
Seating for relatives near bed	4	4	9	6	3	26	84
Facility for food	0	0	0	0	0	0	0
Electricity supply	4	4	7	7	4	26	84
Water supply	4	4	8	8	4	28	90
Drinking water	4	4	8	8	4	28	90
Functional generator	1	0	6	6	2	15	48
Toilet	4	4	9	8	4	29	94
24-hour delivery facility	2	2	9	7	1	21	68
Telephone	4	4	4	3	1	16	52
All-weather approach road	4	3	7	7	6	27	87
Functional vehicle(s)	0	1	2	3	0	6	19
Linkage with a blood bank	2	3	1	0	0	6	19
Medicine store	4	4	9	8	5	30	97

Source: Our Sample Survey of PHCs.

Lack of basic amenities and infrastructure in public health system even at the block level poses a serious constraint on the quality of the healthcare service. NRHM has not been able to address these lacunae so far.

[Table 5.5](#) on physical infrastructure in PHCs reveals worse conditions than those exist at CHC. While every PHC visited had its own building, 35 percent were outside the village. Only 19 percent of the selected PHCs in these three states are upgraded under NRHM. None of the PHCs had necessary equipments for surgeries and 16 percent did not have necessary equipments for deliveries. Twenty-six percent PHCs did not have regular supply of medicines. (The problem was more severe in Azamgarh in UP). Only 29 percent PHCs had regular supply of AYUSH medicine and only 39 percent PHCs had consulting rooms for AYUSH doctors. Thirteen percent PHCs did not have fully equipped labor room. Thirteen percent PHCs did not have beds and 16 percent did not have seating facility for patients' relatives. Food was not provided to patients in any of the PHCs. Linen was washed once in a week and was replaced once in a year on an average. However, essential infrastructure was missing in some PHCs. There was no electric connection in 16 percent PHCs, no water supply in 10 percent, no drinking water supply in 10 percent, no functional generator in 52 percent, toilet in 6 percent, round the clock delivery facility in 32 percent, telephone in 48 percent, all weather approach road in 13 percent, functional vehicles in 81 percent, and linkage with blood bank in 81 percent PHCs did not exist. The IPHS are obviously not met.

The poor quality of healthcare suggested by the lack of such basic amenities and facilities has not been addressed by NRHM so far. Only 61 percent of the PHCs had major repairs/maintenance or renovations after the launch of NRHM.

In this context, it is important to see how the NRHM funds have been managed at CHC and PHC levels. [Table](#)

5.6 provides the information for CHCs in the selected districts. Even after NRHM, 29 percent CHCs did not have any improvement in infrastructure and 14 percent did not have improvement in the manpower. Almost 43 percent CHC did not experience any increase in out-patients. While all CHCs received NRHM funds, only one in MP reported delays in receiving the funds. In MP and Rajasthan, RKS existed much before NRHM. However, 71 percent CHCs did not feel that RKS played any effective role in addressing the complaints of patients. RKS in 71 percent cases was able to improve infrastructure and in 57 percent improve health related equipment. Only in 14 percent cases lodging facilities and in 71 percent cases support services were improved. About 86 percent RKS generate funds and 79 percent feel that the RKS funds are adequate. About utilization of untied funds, 79 percent CHCs are using them for repairs and renovation, 50 percent for buying equipment and 57 percent for buying medicines; only 29 percent were using them to pay for cleaning, security services, and so on, and only 43 percent were using them for hiring staff on contract. However, none of the CHCs used these untied funds for hiring the services of a private doctor.

Table 5.6 NRHM Funds and its Management in CHCs

Details	Rajasthan		Madhya Pradesh	Uttar Pradesh		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Total HFs visited	1	3	3	4	3	14	100
Improvement in Infrastructure	1	3	3	1	2	10	71
Improvement in manpower	1	3	3	2	3	12	86
Increase in institutional deliveries	1	3	3	4	3	14	100
Increase in OPD	0	2	3	2	1	8	57
Number of HFs that conduct deliveries-Normal	1	3	3	4	3	14	100
Number of HFs that conduct deliveries-Cesarean	0	2	0	1	1	4	29
Average number of deliveries in HFs-Normal	752	1207	1695	1513	817	-	-
Average number of deliveries in HFs-Cesarean	0	70	0	1	1	-	-
Average number of OPD per day	70	140	173	143	183	-	-
Number of HFs receiving NRHM funds	1	3	3	4	3	14	100
Number of HFs reporting delay in receiving funds	0	0	1	0	0	1	7
Number of HFs with RKS	1	3	3	4	3	14	100
Number of HFs with a staff member being RKS member	1	3	3	4	3	14	100
Average number of years RKS has been functioning	8	8	13	1	1	-	-
Number of HFs reported RKS playing effective role in addressing complaints of the patients	0	1	0	3	0	4	29
Improvement of HF infrastructure	1	3	1	3	2	10	71
Improvement of health related equipment	1	3	1	3	0	8	57
Improvement of lodging/boarding facilities	0	0	0	0	2	2	14
Improvement in support services	1	3	2	4	-	10	71
Average frequency of RKS meetings per year	4	7	3	7	0	-	-
Number of HFs where RKS generates funds	1	3	2	4	2	12	86
Average amount (Rs) per year	20000	250333	45500	69549	90000	-	-
Number of HFs where RKS funds are audited	1	3	3	4	3	14	100
Number of HFs that feel the funds are adequate	1	3	1	4	2	11	79
Number of HFs that utilize the untied funds for maintenance	1	3	2	3	2	11	79
Number of HFs that utilize the untied funds to hire private doctors' services	0	0	0	0	0	0	0
Number of HFs that utilize the untied funds for repairs/renovation	1	3	2	3	2	11	79
Number of HFs that utilize the untied funds for Buying equipments	1	3	2	1	0	7	50
Number of HFs that utilize the untied funds for buying medicines	1	3	1	1	2	8	57
Number of HFs that utilize the untied funds for paying for services like cleaning, security, and so on	1	2	1	0	-	4	29
Number of HFs that utilize the untied funds for hiring contractual staff	2	3	0	0	1	6	43
Number of years HFs have been receiving untied funds	2	2	3	2	2	-	-
	2005-06	-	-	-	-	-	-
	2006-07	100	93	100	-	-	-
% utilization	2007-08	100	93	100	100	100	-
	2008-09	-	-	-	100	-	-

Source: Our Sample Survey of CHCs.

Table 5.7 provides information on management of NRHM funds at PHC level. Some PHCs in UP did not receive the NRHM funds; and about 23 percent PHCs reported delay in receiving the funds. Only 77 percent PHCs had RKS. Only MP had RKS at PHC level earlier than NRHM. The perception about effectiveness of RKS is not very good in general. Only 35 percent PHCs felt that RKS played effective role in addressing patients' complaints, 55 percent recognized RKS role in improving infrastructure and equipments, only 42 percent felt RKS helped in improving support services. Almost all RKS were able to generate funds and their accounts were audited. However, only 48 percent felt that their funds were adequate. Most of the PHCs receiving NRHM funds utilized it for improvement of infrastructure and in manpower and reported increase in both the number of deliveries and out-patients. However, none of the PHCs were able to conduct c-section

deliveries. The untied funds received by PHCs were used for maintenance and repair (48 percent of PHCs), buying equipments (45 percent PHCs), buying medicines (35 percent PHCs), paying for cleaning and security services (42 percent PHCs), and for hiring contractual staff (16 percent PHCs). None of the PHCs used the untied funds for hiring private doctors' services. The NRHM funds are utilized but the needs are much more. There is also a question of mindset of people in using the funds genuinely to improve healthcare services for the people. Moreover, the RKS at PHC level also did not meet frequently and in some cases ever! Public accountability and concept of people's monitoring and participation to improve healthcare services seems to be quite illusory so far.

Table 5.7 NRHM Funds and its Management in PHCs

Details	Rajasthan		Madhya Pradesh	Uttar Pradesh		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Total HFs visited	4	4	9	8	6	31	100
Improvement in infrastructure	4	4	9	3	2	22	71
Improvement in manpower	3	2	7	3	2	17	55
Increase in institutional deliveries	4	4	9	6	0	23	74
Increase in OPD	1	0	9	3	2	15	48
Number of HFs that conduct deliveries-Normal	4	4	8	3	3	22	71
Number of HFs that conduct deliveries-Cesarean	0	0	0	0	0	0	0
Average number of deliveries in HFs-Normal	48	35	248	955	150	-	-
Average number of deliveries in HFs-Cesarean	-	-	-	-	-	-	-
Average number of OPD per day	24	19	39	62	31	-	-
Number of HFs receiving NRHM funds	4	4	9	6	2	25	81
Number of HFs reporting delay in receiving funds	1	1	3	1	1	7	23
Number of HFs with RKS	4	4	9	6	1	24	77
Number of HFs with a staff member being RKS member	4	4	9	6	1	24	77
Average number of years RKS has been functioning	2	2	7	1	3	-	-
Number of HFs reported RKS playing effective role in addressing complaints of the patients	0	2	4	5	0	11	35
Improvement of HF infrastructure	1	4	6	5	1	17	55
Improvement of health related equipment	2	4	6	4	0	16	52
Improvement of lodging/boarding facilities	1	1	1	0	0	3	10
Improvement in support services	1	3	6	2	1	13	42
Average frequency of RKS meetings per year	0	3	6	0	0	-	-
Number of HFs where RKS generates funds	4	4	9	6	1	24	77
Average amount (Rs) per year	13000	30500	13222	24625	26400	-	-
Number of HFs where RKS funds are audited	4	4	9	6	1	24	77
Number of HFs that feel that the funds are adequate	2	3	7	3	0	15	48
Number of HFs that utilize the untied funds for maintenance	1	3	5	5	1	15	48
Number of HFs that utilize the untied funds for private doctors services	0	0	0	0	0	0	0
Number of HFs that utilize the untied funds for repairs/renovation	1	4	6	3	1	15	48
Number of HFs that utilize the untied funds for buying equipments	1	3	7	3	0	14	45
Number of HFs that utilize the untied funds for buying medicines	2	4	2	2	1	11	35
Number of HFs that utilize the untied funds for paying for services like cleaning, security, and so on	1	3	6	2	1	13	42
Number of HFs that utilize the untied funds for hiring contractual staff	0	2	2	1	0	5	16
Number of years HFs have been receiving untied funds	2	3	2	2	2	-	-
	2005-06	-	65	-	-	-	-
	2006-07	90	93	100	-	-	-
% utilization	2007-08	80	83	99	100	100	-
	2008-09	-	-	-	100	-	-

Before we discuss the sub-centers, we examine the determinants of the health outputs of CHC/PHC considered most critical by NRHM, namely deliveries conducted and OPD patients treated. The models we consider are:

1. Deliveries = f (CHC dummy, Frequency of fund transfer, Delay in receiving NRHM funds, Specialists in HF, GPs in HF, Paramedical staff in HF, Average distance of HF from village, Night availability of doctors, Funds generated by RKS, Years of existence of RKS, Dummies for UP and MP).
2. OPD = f (CHC dummy, Frequency of fund transfer, Delay in receiving NRHM funds, Specialists in HF, GPs in HF, Paramedical staff in HF, Average distance of HF from village, Night availability of doctors, Funds generated by RKS, Years of existence of RKS, Dummies for UP and MP).

The determinants considered by us include NRHM policy and design variables, physical factors and charac-

teristics of HFs, and general environmental variables. [Tables 5.8](#) and [5.9](#) present the results of the multivariate regression for both these models, respectively. We also considered the model by dropping statistically insignificant variables. Both the models fit our sample data very well with r-square in excess of 0.75. Presence of GPs in HF, paramedical staff, average distance of HF from village, funds generated by RKS, years of existence of RKS and state dummy for UP are found statistically significant determinants of the number of deliveries in the HF. Surprisingly night availability of doctors and number of specialists in the HFs do not determine the number of deliveries taking place in the HFs.

Table 5.8 Regression Results on Determinants of Deliveries in HF

Variables		Coefficient	t-statistic	P-value	R-sqaure	Adjusted R-square	F-significance
Deliveries on All Variables							
CHC/PHC	Dummy	93.3	0.744	0.4621			
Frequency of fund transfer	Number	39.5	0.839	0.4077			
Delay in receiving NRHM funds	Dummy	-126.6	-0.622	0.5380			
Specialists in HF	Number	-284.0	-2.448	0.0198			
General doctors in HF	Number	147.2	3.242	0.0027			
Paramedical staff in HF	Number	55.5	2.520	0.0168			
Average distance of HF from village	km	-167.8	-1.730	0.0930	0.7889	0.7121	0.0000
Night availability of doctors	Dummy	110.3	0.701	0.4881			
Fund generated by RKS	Amount Rs	0.003	2.758	0.0094			
Years of RKS	Number	69.3	2.914	0.0064			
Uttar Pradesh	State dummy	712.9	3.291	0.0024			
Madhya Pradesh	State dummy	-0.018	0.000	0.9999			
Deliveries on Selected Variables							
CHC/PHC	Dummy	-	-	-			
Frequency of fund transfer	Number	44.7	1.064	0.2944			
Delay in receiving NRHM funds	Dummy	-	-	-			
Specialists in HF	Number	-269.9	-2.384	0.0225			
General doctors in HF	Number	153.8	3.635	0.0009			
Paramedical staff in HF	Number	62.9	3.049	0.0043			
Average distance of HF from village	km	-169.4	-1.923	0.0624	0.7783	0.7229	0.0000
Night availability of doctors	Dummy	-	-	-			
Fund generated by RKS	Amount Rs	0.003	2.602	0.0134			
Years of RKS	Number	74.0	3.253	0.0025			
Uttar Pradesh	State dummy	682.5	3.949	0.0004			
Madhya Pradesh	State dummy	-161.2	-0.749	0.4589			

Table 5.9 R regression Results on Determinants of OPD Patients in HF

Variables		Coefficient	t-statistic	P-value	R-square	Adjusted R-square	F-significance			
OPD on All Variables										
CHC/PHC	Dummy	11.3	1.347	0.1872	0.8871	0.8461	0.0000			
Frequency of fund transfer	Number	-0.95	-0.302	0.7643						
Delay in receiving NRHM funds	Dummy	-22.3	-1.641	0.1103						
Specialists in HF	Number	0.85	0.109	0.9138						
General doctors in HF	Number	6.31	2.081	0.0453						
Paramedical staff in HF	Number	7.91	5.373	0.0000						
Average distance of HF from village	km	-6.04	-0.932	0.3580						
Night availability of doctors	Dummy	0.11	0.011	0.9914						
Fund generated by RKS	Amount Rs	0.00	0.409	0.6854						
Years of RKS	Number	3.34	2.101	0.0434						
Uttar Pradesh	State dummy	51.4	3.550	0.0012						
Madhya Pradesh	State dummy	51.1	2.861	0.0073						
OPD on Selected Variables										
CHC/PHC	Dummy	10.4	1.327	0.1925				0.8853	0.8604	0.0000
Frequency of fund transfer		-	-	-						
Delay in receiving NRHM funds	Dummy	-23.8	-1.902	0.0650						
Specialists in HF	Number	-	-	-						
General doctors in HF	Number	5.80	2.235	0.0316						
Paramedical staff in HF	Number	8.52	11.258	0.0000						
Average distance of HF from village	km	-6.14	-1.065	0.2937						
Night availability of doctors	Dummy	-	-	-						
Fund generated by RKS	Amount Rs	-	-	-						
Years of RKS	Number	3.47	2.381	0.0226						
Uttar Pradesh	State dummy	50.6	3.817	0.0005						
Madhya Pradesh	State dummy	48.6	2.975	0.0051						

Similarly, for OPD patients also, the determinants—statistically significant variables—turn out to be GPs in HF, paramedical staff, years of RKS, delay in receiving NRHM funds, and state dummies for both UP and MP. Here also the number of specialist doctors in HF does not matter. Similarly, CHC/PHC distinction also does not matter. These are some useful results for the consideration of NRHM policy makers.

Note

1. The usual practice is for the patients to bring their own bed sheets!