

**Improving access, service delivery and
efficiency of the public health system in rural
India**

Mid-term evaluation of the
National Rural Health Mission

**CGSD Working Paper No. 37
October 2009**

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Working Papers Series
Center on Globalization and
Sustainable Development
The Earth Institute at Columbia University
www.earth.columbia.edu

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Acknowledgements

This book is the product of a request made by the Ministry of Health and Family Welfare, Government of India to an International Advisory Panel (IAP) on the National Rural Health Mission (NRHM) to undertake a mid-term evaluation of the functioning of the NRHM.

The work leading up to this book was undertaken with the generous support of the Government of Norway and we gratefully acknowledge the Norwegian Government's support and the support we received from the Bill and Melinda Gates Foundation for convening seven IAP meetings in Delhi over three years.

We would like to record our sincere thanks to the Honorable Dr. Manmohan Singh, Prime Minister of India for having given us the opportunity to work with him and his cabinet members over the last several years. It has been our profound privilege to collaborate with Dr. Singh and senior policy makers in the Government of India. We presented this Report to Prime Minister Singh in New Delhi on August 5, 2009.

We are grateful to Ghulam Nabi Azad, Health and Family Welfare Minister of India, Sujatha Rao, Secretary, Ministry of Health and Family Welfare, P. K. Pradhan, Additional Secretary and Mission Director, NRHM, Amarjeet Sinha, Joint Secretary and Archana Varma, Director, NRHM for useful discussions and for extending their support and cooperation in our work. We presented this Report to Health Minister Azad and the ministry officials on August 7, 2009.

We owe a special debt of gratitude to all IAP members for providing valuable insights during the IAP meetings: Dr. Tore Godal: Special Advisor to the Prime Minister of Norway; former Special Advisor & Consultant, Bill and Melinda Gates Foundation; Dr. Kiyoshi Kurokawa: President, Science Council of Japan; Commissioner, WHO Commission for Social Determinants of Health; Special Advisor to the Cabinet, Government of Japan; Dr. Stephen R. Leeder: Director, the Australian Health Policy Institute; Co-Director, the Menzies Centre for Health Policy; Dr. Joanna Rubinstein: Chief of Staff to Jeffrey Sachs, Director of Strategic Programs, Director of the Center for Global Health and Economic Development, the Earth Institute at Columbia University; Dr. Sonia Ehrlich Sachs: Health Coordinator of the Millennium Villages Project, the Earth Institute at Columbia University; Dr. Mathuram Santosham: Professor of International Health and Pediatrics, Director of the Health Systems Program, Director of the Center for American Indian Health, Johns Hopkins University; Dr. Awash Teklehaimanot: Director, Center for National Health Development in Ethiopia, the Earth Institute at Columbia University and Dr. Walter Willett: Chair of the Department of Nutrition, Frederick John Stare Professor of Epidemiology and Nutrition, Departments of Nutrition and Epidemiology, Harvard School of Public Health, Harvard University.

Of the above IAP members, special thanks are due to Stephen Leeder, Mathuram Santosham, Awash Teklehaimanot and Walter Willett for their contributions in this Report.

The field data collection was undertaken by a team at the Indian Institute of Management at Ahmedabad. We are grateful to Surbhi Grover from the Harvard Medical School for fieldwork and reporting and Shreekant Iyengar, Prabal Singh and Prakash Parmar for their help in primary data collection, collation and tabulation.

We thank all the respondents of our primary survey among the major stakeholders in the NRHM for sharing their views and information so kindly and generously. We also thank the district health functionaries of the selected districts who supported and cooperated with our survey team to enable us to complete the survey work in time.

Over the years, we have benefitted immensely from our discussions with and thank Ashok Alexander, Shobha and Raj Arole, Abhay Bang, Larry Brilliant, Gary Darmstadt, Rajan Dubey, Roger Glass, Sangeeta Goyal, Geeta Rao Gupta, Rajat Gupta, Prabhat Jha, Usha Kiran, Vishwajeet Kumar, Vinod Paul, Rajiv Misra, Pavitra Mohan, Rachel Moresky, Rohini Nilekani, Srinath Reddy, Devi Shetty, Digvijaya Singh, and Puja Thakker.

October 2009
New York

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The National Rural Health Mission Mid-term evaluation

Introduction:

This book presents the findings of a project to evaluate the functioning of the National Rural Health Mission (NRHM) which was put together at the request of the Minister of Health and Family Welfare, Government of India to an International Advisory Panel (IAP) for the NRHM. The IAP was constituted to provide broad policy advice to the Ministry of Health on how best to achieve the key objectives of the NRHM. The principal activity under this project was to conduct a systematic evaluation of the performance of the NRHM in selected states of India relying on a mix of inputs: extensive data sets already collected by the Ministry of Health since the launch of the NRHM; new survey data which was collected; empirical analysis of the primary and secondary data; detailed interviews of health functionaries at the village, block and the district levels; documentation of key innovations, challenges and successes that have arisen in particular regions, and inputs from some of the members of the IAP, such as our experts on core reproductive, maternal, newborn and child health issues, nutrition, chronic diseases, and malaria among others. The project was undertaken in collaboration with the Indian Institute of Management (IIM) at Ahmedabad. It was decided to focus on three of NRHM's high-focus states, i.e. Madhya Pradesh (henceforth MP), Rajasthan (henceforth RJ) and Uttar Pradesh (henceforth UP).

The project undertook field work in selected districts of MP, RJ and UP. We selected five districts from these states and surveyed health facilities and functionaries. These were Sagar district in MP; Jalore and Chittorgarh districts in RJ; and Sitapur and Azamgarh districts in UP. In RJ, we selected two districts because we needed to have both the desert conditions (Jalore) and tribal population (Chittorgarh) represented in our sample survey. Similarly, we selected two districts in UP too because we needed populations of both central UP (Sitapur) and eastern UP (Azamgarh) represented in our survey to make the sample representative of the state-wide conditions. We sought to determine perception of public health services in light of decentralization changes put in place by the NRHM to better understand the utilization of these facilities; the availability of manpower, especially Accredited Social Health Activists (ASHAs); availability of medicines; and health personnel's perceptions of the NRHM, among others.

We studied several key features of the NRHM, including:

1. The role of the Accredited Social Health Activists: To what degree are ASHAs effectively utilized? How are they working with the Aanganwadi workers of the Integrated Child Development Service (ICDS) program to achieve the key objectives of the NRHM?
2. The role of the Panchayati Raj Institutions (PRIs) in managing local health facilities;
3. The existing infrastructure and human resources at the sub-centers (SCs) and the Primary Health Centers (PHCs): Are they commensurate with the growing needs of the regions?
4. The efforts to reduce the infant mortality rate (IMR) and maternal mortality rate (MMR): Is the NRHM effectively undertaking the necessary interventions to reduce IMR and MMR? And are major efforts in various settings, such as novel strategies for reducing neonatal and maternal deaths, impacting outcome rates?
5. Are the necessary management structures in place to manage health services at the village, block and district levels?

The field visits also aimed at “ground truthing.” By making sophisticated and expert “spot checks” on the NRHM processes, important ground realities have been uncovered at low cost and relevant ideas generated for follow up action. The project has assessed the progress of NRHM and identified gaps and bottlenecks in the implementation of the Mission with a view to recommend early to mid-course corrections.

Much of the focus has been on the ASHA workers. We have tried to address the following issues among others:

- Are there clearly identifiable norms and processes that guide the recruitment of ASHA workers (e.g., an ASHA worker should be from the same village where she will serve?) Are these norms being followed?
- Are the roles and responsibilities of the ASHA worker vis-à-vis other government functionaries defined, articulated, and communicated (e.g., with ANMs, anganwadi workers, PHC officials, panchayati raj officials, etc.) in such a way as to reduce conflict between the different agencies, but also allow her to still be effective? Is her role/job definition simple enough that it is likely to be followed in practice?
- Are there simple tools, processes, and management information systems (MIS) that an ASHA worker has to help her in her day-to-day job and monitor the effectiveness of her performance?
- Are the incentive systems of the ASHA worker aligned with doing the few simple things that will have the most health impact among women and children?
- Does the ASHA worker receive adequate support and coaching from supervisors, and support from PHCs, Panchayati Raj, and the Integrated Child Development Scheme (ICDS) system to be able to deliver effectively on her job? Are the ASHA workers paid on time and adequately? Are they adequately supplied with medical kits?

Given that one of the core strategies of the NRHM is to train and enhance capacity of the Panchayati Raj Institutions (PRIs), to own, manage and control the health facilities, the following questions should be carefully addressed by all the state governments:

- Has the decentralized power and authority that has been given to the PRIs on paper actually reached the people?
- Do they understand their duties/responsibilities on the one hand and their authority on the other? Do the PRIs have the capacity to manage health centers?
- Are there regular and comprehensive capacity building programs in place?
- Are any measures being undertaken to ensure that the caste and patriarchy do not prejudice effective management at the local level?

In order to collect the necessary data and information, we utilized a set of questionnaires for ASHAs, ANMs, and Medical Officers in Charge in PHCs and CHCs.

Not only does this report address the issues highlighted above from our three high-focus NRHM States – MP, RJ and UP, but it also incorporates observations from some of the non-focus NRHM

States, such as Andhra Pradesh (henceforth AP), Karnataka (henceforth KR) and Tamil Nadu, (henceforth TN) especially using data already collected by the Ministry of Health, secondary data available in the public domain and discussions with public health officials in these states.

Put together, our three focus states - MP, RJ and UP are three of the largest states in India, located almost in a continuum from the west to the middle to the north. All the three states are land-locked and low performing in economic development. MP and RJ constitute respectively 13.5% and 10.4% of the country's total geographical area, but contribute only 5.9% and 5.5% of the country's population. UP, on the other hand, accounts for 9% of area, but 16.2% of the country's population¹. Thus, UP has the population density of 689 per sq. k.m. compared to only 165 in Rajasthan and 196 in MP. The reason is that, both MP and RJ have almost one-third of land respectively under forests and desert respectively, and as a result their net sown area is only 45% and 47% compared to 59% in UP.

Rajasthan has semi-arid to arid climate with temperature shooting upto 50°C during the summer. Regularly recurring droughts have serious adverse impact on the livelihood and source of sustenance of people in the rural areas. Drought relief measures have become inevitable for sustaining majority of rural population in the state. MP, on the contrary, has a lot of hilly areas coupled with fertile valleys. The state has almost 38% of the population consisting of tribals and socially disadvantaged groups.

UP is more than twice densely populated state than the country as a whole, but has one of the lowest degrees of urbanization at 21% compared to the national average of 27.4%. It has fertile alluvial plain formed by the perennial rivers like the Yamuna, the Ganges and the Ghaghara. Moreover, it enjoys moderate rainfall and an extensive irrigation system covering more than two-thirds of gross cropped area. However, the sheer population pressure makes the land-man ratio extremely low and agriculture unviable. Special programs and focused efforts are necessary to reduce pressure on agriculture and promote rapid urbanization in the state.

All the three states have a lower sex ratio (920 in MP, 922 in RJ and 898 in UP) than the national average (933 females per 1000 males) though it has shown significant improvement during the 1990s in each of them. Again in terms of overall literacy rate and particularly among females, the three states are well below the national average as per the 2001 Census. All the three states have a lower degree of urbanization (26.7% in MP, 23.4% in RJ and 20.8% in UP) than the national average (27.4%) and yet, UP has the second lowest work participation rate (WPR) of only 32.6%. MP and RJ, however, have a higher WPR of respectively 42.8% and 42.1% when the national average is 39.3%. In spite of lower degree of urbanization, the proportion of slum dwellers in the urban population is higher at 22.3% in UP and 24.7% in RJ than the national average of 21.6%.

¹ Interestingly, if UP were to be a separate country, it would be the sixth most populous country in the world after China, India, United States, Indonesia and Brazil. Given the size of its population, the lower house of the Indian Parliament (Lok Sabha) has a representation of 80 Members of Parliament from UP, out of a total of 543 Parliamentary Constituencies in the country. Furthermore, given this large political representation that UP has on an all-India scale, it is not surprising therefore that of the 14 Prime Ministers' that India has had since independence, eight of them have come from UP, but more importantly, these eight have collectively governed the country for as many as 48 of the 62 years of post independent India. However, despite such a large all-India political power base in UP, it does not seem to have benefited the state in any meaningful way.

Chapter II Health sector in Rural India:

India's achievements in the field of health leave much to be desired and the burden of disease among the Indian population remains high. Infant and child mortality and morbidity and maternal mortality and morbidity affect millions of children and women. Infectious diseases such as malaria and especially TB are reemerging as epidemics, and there is the growing specter of HIV/AIDS. Many of these illnesses and deaths can be prevented and/or treated cost-effectively with primary health care services provided by the public health system. An extensive primary healthcare infrastructure provided by the government exists in India. Yet, it is inadequate in terms of coverage of the population, especially in rural areas, and grossly underutilized because of the dismal quality of healthcare being provided. In most public health centers which provide primary healthcare services, drugs and equipments are missing or in short supply, there is shortage of staff and the system is characterized by endemic absenteeism on the part of medical personnel due to lack of control and oversight.

As a result, most people in India, even the poor, choose expensive healthcare services provided by the largely unregulated private sector. Not only do the poor face the double burden of poverty and ill-health, the financial burden of ill health can push even the non-poor into poverty. On the other hand, a healthy population is instrumental both for poverty reduction and for economic growth, two important developmental goals. In India, public spending on health is less than one percent of its GDP, which is grossly inadequate. Public investment in health and in particular in primary healthcare needs to be much higher to achieve health targets, to reduce poverty and to raise the rate of economic growth. Moreover, the health system needs to be reformed to ensure efficient and effective delivery of good quality health services.

The average figures for India hide a great deal of variation in the performance of different states, which are on different points along the health transition path. Health transition has three components: demographic, which involves lowering of mortality and fertility rates and an aging population; epidemiological wherein the pattern of diseases prevalent in the population changes from communicable diseases to non-communicable diseases such as the chronic diseases of adulthood; and social whereby people develop better ability to self-manage their health and have better knowledge and expectations from the health system. While Kerala, Maharashtra and Tamil Nadu are much further along in the health transition trajectory, the densely populated states of Orissa, West Bengal, Bihar, RJ, MP, and UP are still in the early part, with the other states falling in between. For instance, while in Kerala, life expectancy at birth is 72; in MP it is merely 56. A few states and about a quarter of the districts account for 40 percent of the poor and over half of the malnourished, nearly two thirds of malaria and kala-azar², leprosy, infant and maternal mortality – diseases that can be easily averted with access to low cost public health interventions such as universal immunization services and timely treatment.

Apart from variations due to income and education, health status in India varies systematically between rural-urban location, membership of scheduled caste and tribe, and by age and gender. All health indicators for rural areas compare unfavorably with those for urban areas; people belonging to scheduled castes and tribes have much poorer health compared to those who

² Also known as Black fever is a tick-borne illness. The disease is characterized by sudden onset of headache, chills, and fever which can persist for 2-3 weeks. India accounts for half of the 600,000 infections that are annually recorded worldwide. Most of the cases in India come from the states of Bihar, UP, West Bengal and Orissa, with Bihar alone accounting for ninety percent of all India's black fever victims.

belong to the upper castes; and children and women in India suffer grossly from the burden of disease and ill-health. Morbidity among women and children is endemic in India.

Dysfunctional Sub-centers and Primary Health Centers

The rural primary healthcare system in northern and central India is, for the most part, dysfunctional. While extensive, it is wasteful, inefficient and delivers very low quality health services, so much so that the private sector has become the de facto provider of health services in India. The geographical and quantitative availability of primary healthcare facilities, though extensive, is far less than the guidelines laid down by the government.

Access is important but people's experiences of what the facility has to offer in terms of medical care and whether it is worth their while to use it are equally important in terms of their incentives to utilize healthcare facilities. People's perceptions of 'free' care is that of it being of low quality, and therefore, even the available infrastructure is grossly underutilized, i.e. the public healthcare system in India suffers from gross supply side distortions that go beyond physical availability. This affects the delivery of basic services to its large population of poor whose quality of life depends in crucial ways on public goods. The simple availability of a building designated as a public health facility is no guarantee that it is functional, and if functional, accessible to groups of people who may be restricted in their use of public healthcare services on account of their caste, religion and gender. Even setting aside socio-economic barriers to access and assuming the presence of a public health facility close at hand, the delivery of quality healthcare services is not guaranteed. The infrastructure is of poor quality and there is severe lack of even basic drugs and equipment. This is especially true for rural areas, and with regard to women's and children's health. Maternal, infant and child morbidity and mortality rates are intolerably high in India. Not only social justice but economic efficiency is being compromised as India does little to protect the health and well-being of its future generations.

Like the public education system in India, the large publicly provided health system is also marred by endemic absenteeism and neglect on the part of healthcare providers. The structure of incentives whereby public employees are guaranteed a salary and there is little or non-existent monitoring and accountability removes any punitive pressure that can act as a corrective on negligent behavior by public healthcare personnel. Even the private sector, which provides most of the health services in India, is largely unregulated and there is no gate-keeping on the standards of clinical practices adopted. Healthcare requires not only physical infrastructure and equipment, but also skilled and specialized human capital in the form of medical training and qualifications. Given the asymmetry of information between a doctor and his/her patient, low quality of medical consultancy not only lowers the efficacy of the health system, but can endanger people's health. The problem of unavailability of healthcare personnel is two-fold, especially in rural and remote areas: in many cases, rural health posts remain vacant because of unwillingness on the part of qualified doctors and other health care workers to accept the placement; and secondly, due to lack of effective monitoring and weak or non-existent accountability, even when a post is filled, the healthcare provider may simply be absent. While in both cases, public health care services fail to get delivered, absenteeism is costlier because it has an associated salary burden (Chaudhury et al, 2003).

One government failure in the health sector is the lack of any systematic efforts to track the health system and health facilities. There is no system in place to collect data on a regular and standard basis from service providers; nor is there any periodic evaluation of health personnel on their technical competence and ability to provide medical care. While, on paper, inspection and supervision and visits to healthcare facilities are provided for, there is little implementation.

Without a reliable surveillance system and systematic data collection, the prevalence, magnitude, distribution and modes of transmission of diseases cannot be judged and no rational basis exists for the formulation of appropriate policies. An integrated health management system with the use of information technology, as discussed later in the paper, could greatly assist in this task.

The rural healthcare structure is extremely rigid making it unable to respond effectively to local realities and needs. For instance, the number of auxiliary nurse midwives³ (ANMs) per PHC is the same throughout the country despite the fact that some states have twice the fertility level of others. Moreover, political interference in the location of health facilities often results in an irrational distribution of PHCs and sub-centers. Government health departments are focused on implementing government norms, paying salaries, ensuring the minimum facilities are available rather than measuring health system performance or health outcomes. Further, the public health system is managed and overseen by District Health Officers. Although they are qualified doctors, they have barely any training in public health management. Strengthening the capacity for public health management at the district and taluk level is crucial to improving public sector performance. Also, there is lack of accountability, which stems from the fact that there is no formal feedback mechanism. How can the management capacity be strengthened and a feedback mechanism established? We examine some of these issues later in this report.

The highest priority for scaling up health services in the rural areas is at the community level, (sub-centers, PHCs and CHCs) where actual health services are delivered. Scaling up at this level would involve a basic strengthening of the staffing, an adequate supply of drugs and vaccines, and at least a minimal capacity of transport. It also involves both the hard infrastructure of the health sector (physical plant, diagnostic equipment, telephone and possibly e-mail connectivity of these centers) and the soft infrastructure, implying better systems of management and supervision, and better accountability to the users through local oversight of these centers. We believe that without strong community involvement and trust in these centers, the expanded and effective coverage of the rural poor is unlikely to be achieved. How can this be done? We will discuss some ideas towards the end of this report.

The National Rural Health Mission (NRHM)

It is in the background described above that the National Rural Health Mission (NRHM) was launched by the Prime Minister of India on April 12, 2005 in an effort to improve public health services with a special focus on states with weak public health infrastructure and indicators. The NRHM has 18 high-focus states. The Goal of the Mission is to improve the availability of, and access to, quality health care for people, especially for those residing in rural areas, the poor, women and children, thereby bridging urban-rural disparities.

NRHM is undoubtedly the most ambitious rural health initiative to be launched in post independent India by the United Progressive Alliance (UPA) of various political parties coming together after the 2004 general elections as a part of their Common Minimum Program. It has a time frame of 7 years from 2005-06 to 2011-12. Thus it covers two years in the Tenth Five Year Plan (2002-07) and the whole of the Eleventh Five Year Plan (2007-12). It is essentially a central

³ The ANM is a frontline health worker. The ANM deals with all aspects of health and family welfare. Her domain usually consists of half a dozen villages, one of which is a Sub-Center village. At one level she operates from the sub-center where clients come for services. At another level she visits villages and homes for contacting women, children and men for providing services, giving medicines, tendering advice etc (Nagdeve ,2002).

government's initiative to meet some key health sector goals, where India seriously lags behind and was considered off-track in achieving the MDGs by the year 2015. (see Bajpai and Sachs, 2003; Dholakia et al. 2004). These MDGs related to infant mortality rate and related indicators about maternal and child nutrition and health; and maternal mortality rate and related indicators of institutional deliveries, ante-natal and post-natal care, etc.

Rural areas in certain Indian States were arguably having extremely poor primary health care infrastructure both in terms of quality and quantity. Massive scaling up effort would be needed to provide adequate quantity and thereby hopefully improved quality of primary healthcare in the states. A detailed exercise was carried out by the Earth Institute at Columbia University and the Indian Institute of Management at Ahmedabad team over four years covering 6 major states in the country, viz., UP, MP and Rajasthan in northern India; and Andhra Pradesh (AP), Karnataka and Tamil Nadu (TN) in the Southern India. (see, Bajpai et al., 2005, Bajpai and Dholakia, 2006; Bajpai et al., 2007 and Bajpai et al., 2008). These exercises estimated the scaling up effort required to provide adequate facilities as per the existing norms of services to cover the whole rural population of the states in terms of both manpower and financial resources. **Table 1** provides a summary of the financial estimates given in those studies for each of these 6 states.

Table 1: Estimates of Resource Requirements to Scale up Primary Healthcare in Rural Areas of Selected States in India				
States	Year	Additional Resource Requirements*		Additional Effort as % of Current Budget Allocation to Health**
		Per Capita (in Rs.)	Total (in Rs. Billion)	
M.P.	2006-07	262	17.42	115%
U.P.	2006-07	288	52.58	116%
Rajasthan	2007-08	263	16.90	49%
A.P.	2008-09	203	16.89	49%
Karnataka	2008-09	144	8.59	35%
T.N.	2009-10	133	8.88	31%
* - Includes both recurrent and capital expenditures.				
** - Health includes sanitation, water supply besides Family Welfare.				
Source: Bajpai et al., 2005, 2006, 2007 and 2008.				

It is clear from the table that (i) the available healthcare infrastructure in rural areas differs considerably from state to state; (ii) each state has at least some deficiency of the healthcare infrastructure even in the quantitative terms compared to the existing norms of the satisfactory service level; (iii) the magnitude of the scaling up efforts required as a percentage of the current budget allocation to health, sanitation and water supply differed substantially; and (iv) the requirements of additional resources are simply enormous in absolute terms in some of the large states. Moreover, the considerable interstate variation in the healthcare infrastructure also indicates substantial variations in the health output and outcome indicators. District Level Health Survey (DLHS) have been regularly conducted in India every 4 to 5 years since 1998-99. The data on selected health outputs and outcomes for the year 2003-04 available from the second DLHS are summarized in **Table 2**.

It can be seen from the table that there is a marked variation in all these healthcare outputs and outcome indicators. The southern states with the only exception of Orissa have

relatively more favorable levels of these indicators. The northern states with the exception of Delhi, Haryana and Punjab, on the other hand, have relatively unfavorable levels of these indicators. Thus, in terms of healthcare indicators, there is a clear north-south divide. In order to reduce the interstate disparity in healthcare related indices and thereby in the living conditions and quality of life among states, UPA government launched the NRHM as a Central Government initiative to begin with in the 18 states with weaker health indicators clubbing north-eastern states with the weaker north Indian states and Orissa. These 18 states were called High Focus States (HFS). In **Table 2**, there are only 14 HFS because, the required data on Arunachal Pradesh, Jammu & Kashmir, Manipur and Nagaland were not available and hence were dropped.

Table 2: Health Output and Outcome Indicators for Indian States, 2003-04					
States	Unmet Needs (in %)	Women Taking at least 3 ANC Checkups (in %)	Fully Immunized Children (in %)	Institutional Deliveries (in %)	Infant Mortality Rate (2003)
High Focus States					
Bihar	38.3	16	20.7	18.8	60
Chhattisgarh	22.1	44.4	56.9	18.1	70
Himachal Pradesh	11.8	64.9	79.3	45.1	49
Jharkhand	34.2	27.5	25.7	21.2	51
Madhya Pradesh	21.2	32.3	30.4	28.7	82
Orissa	19.8	41.7	53.3	30.8	83
Rajasthan	22.1	28.8	23.9	30.3	75
UP	34.3	21.5	25.8	21.4	76
Uttarakhand	26.9	21.2	44.5	24	41
Assam	23.6	39.4	16	23.2	67
Meghalaya	55.3	42.8	13.5	32.5	57
Mizoram	25	54	32.6	52.6	16
Sikkim	18.2	66.7	52.7	57.8	33
Tripura	24.8	62.7	32.6	61.1	32
Non High Focus States					
Andhra Pradesh	10.7	86	62	59.4	59
Chandigarh	15.3	73.6	53.5	47.4	19
Delhi	16.4	67.2	59.2	50	28
Goa	43.1	84.3	76.9	91.2	16
Gujarat	16.3	57.3	54	52.2	57
Haryana	14.7	43.1	59.1	35.7	59
Karnataka	15.1	78.6	67.8	57.9	52
Kerala	15.1	96.5	78.5	97.6	11
Maharashtra	12.6	69.2	70.9	57.9	42
Puducherry	16.6	97.8	89.3	97.2	24
Punjab	10.3	63.5	72.9	48.9	49
Tamil Nadu	18.1	94	91.4	86.2	43
West Bengal	11.2	62.7	5.3	47	46
<i>Source: DLHS 2, 2002-04</i>					

Expenditure on health by governments in India declined from 1.3% of GDP in 1990 to only 0.9% of GDP in 1999. The central government contributed only 15% while the state governments shared 85% of such expenditures. The health and family welfare programs displayed only a limited extent of synergy and coordination at the implementation level. The health related issues like sanitation, drinking water, hygiene and nutrition were not integrated with health programs. Hospitalization is very expensive for an average rural resident requiring about 58% of their total annual expenditures. Almost 40% of those who have to be hospitalized have to borrow heavily or sell assets to meet the expenses; and more than a quarter of the persons hospitalized fall into poverty on account of the hospital expenses. The curative health services are heavily biased for the non-poor in the sense that “over every Rs.1 spent on the poorest 20% population, Rs.3 is spent on the richest quintile.” Lack of community involvement and ownership of public health programs has led to poor accountability and effectiveness of such programs.

The NRHM’s vision, strategies and its various components are described on the NRHM website and its documents as follows:

I. Vision

The vision of the Mission consists of the following main elements:

- provide effective health care to rural population throughout the country;
- commitment of the central government to raise public spending on health from 0.9% of GDP to 2 to 3% of GDP;
- undertake architectural correction of the health system to enable it to handle effectively increased allocations;
- promote policies that strengthen public health management and service delivery in the country;
- revitalize local health traditions and mainstream Ayurveda, Yoga, Unani, Sidha and Homeopathic (AYUSH) treatments into public health systems;
- decentralize programs for district management of health;
- define time bound goals and report publicly on their progress; and
- improve access of rural people, especially poor women and children, to equitable, affordable, accountable and effective primary health care.

II. Strategies

The strategies of NRHM are divided into core and supplementary strategies.

(a) Core Strategies :

- Divide the whole country into HFS and the rest. The HFS are those 18 states which have weak public health indicators and / or weak infrastructure. All north-eastern states are included in HFS. This is done to reduce regional imbalance in health infrastructure.
- Enhance capacity of PRIs to own, control and manage public health services through continued training;
- Install a female health activist at the village level to ensure household level access to improved health care;
- Prepare Health Plan for each village through a local team of the Panchayat;
- Strengthen sub-centers through an Untied Fund for local planning, action and induction of more Multi Purpose Workers (MPWs);

- Strengthen existing PHCs and Community Health Centers to meet IPHS normative standards and provide 30 to 50 bed CHC per 100,000 population to improve curative health care;
- Implement an inter-sectoral District Health Plan including drinking water, sanitation, hygiene and nutrition prepared by the District Health Mission (DHM);
- Integrate the vertical Health and Family Welfare programs at Block, District, State and National levels;
- Provide technical support to National, State and District Health Missions for public health management;
- Strengthen capacities for data collection, assessment and review for evidence based planning, monitoring and supervision;
- Formulate transparent policies for deployment and career development for human resources for health;
- Develop capacity for preventive health care at all levels for promoting healthy life styles and reduction in consumption of tobacco, alcohol, etc; and
- Promote non-profit sector particularly in underserved areas.

(b) Supplementary Strategies :

- Regulate private sector including the informal rural practitioners to ensure availability of quality service to citizens at reasonable cost;
- Promote Public Private Partnership (PPP) for achieving public health goals;
- Revitalize local health tradition by mainstreaming AYUSH;
- Reorient medical education to support rural health issues including regulation of medical care and medical ethics; and
- Provide health security and insurance to the poor by ensuring accessible, affordable, accountable and good quality hospital care.

III. Components of Action Plan

There are 10 components, A to J, of the action plan of NRHM. They are:

(A) Accredited Social Health Activists (ASHA) :

a. Selection and Training

Under the NRHM, a provision was made for at least one Accredited Social Health Activist (ASHA) to be provided for every village with a 1000 population. The ASHA, (called a Village Health Worker or VHW in southern states) was by design a daughter-in-law of the village. Theoretically she is supposed to be at least an 8th grade graduate, but in practice the one with the highest level of schooling relative to the others was nominated by the gram panchayat. These women were then made to pass a basic reading and writing test. The ASHAs generally underwent a 23 day classroom training session where they were imparted some training in dressing wounds, dispensing medicines for oral rehydration, coughs, colds, fevers, identification of diseases like TB, prenatal care, postnatal care, and community mobilization. In most cases but not all, ASHAs were also given an additional 5 day infield practical training under the supervision of an ANM. Her induction training will be for 23 days in all, spread over 12 months, while on the job training would continue throughout the year. States are allowed to make modifications in the prototype training material to be developed at the national level. Training of trainers, distance learning models, involvement of NGOs, ICDS training centers, State Health Institutes, etc. are all provided. ASHA will be promoted all over the country with special emphasis on the 18 high focus states. The central government will bear the cost of training, incentives and medical kits for

ASHA. The remaining components will be funded under the Financial Envelope given to the states under NRHM.

b. The Medical Kit

She will be given a Drug Kit containing generic AYUSH and allopathic formulations for common ailments; and the kit is supposed to be replenished from time to time. During training ASHAs are provided with a basic medical kit consisting of various first aid paraphernalia, specifically:

- Bandages and cotton
- Oral Rehydration Salts (Citrate I.P.)
- Antifungal Ointment (500 gm)
- Gentamycin Eye Drops
- Antiseptic Benzyl Benzoate (450mL bottle required to be stored in a cool dry place)

c. Function and Role

Her main task is to be the liaison between people of her village and the ANM, and the doctor of the PHC where required. She serves as the primary contact of the public health system for the people. It was envisaged that the presence of an ASHA would reduce the burden of the ANM, thereby increasing her efficiency, and also increase the outreach of health services, thereby improving access of the population to public healthcare, specifically the marginalized populations, women and children. Not just a provider of basic curative medicines and first aid, an important part of her role was to facilitate preventive care. The ASHA motivates members of her community, especially expectant mothers, to use the health services offered and encourage institutional deliveries as opposed to potentially unsafe home deliveries.

d. Incentives

The ASHAs do not receive a fixed salary⁴, but a performance-based system is followed instead for her payments. She will be an honorary volunteer receiving performance-based compensation for (i) promoting universal immunization, (ii) referral and escort services for reproduction and child health (RCH), (iii) construction of household toilets, and (iv) other health care delivery programs. She will also facilitate preparation and implementation of the Village Health Plan along with Anganwadi Worker, ANM, functionaries of other departments, Self Help Group (SHG) members and Village Health and Sanitation Committee (VHSC) of Panchayat. The ASHAs maintained a register with a log of how much and for whom she facilitated the receipt of institutional care. Once this register is verified by the ANM, it is then further approved by the Sarpanch, the head of the Gram Panchayat. Once this is done, the ANM then sends a payment request to the District Level Health Officer, who will dispatch the payment to the nearest PHC. Usually payments are only dispatched once every three months. Lastly, the ANM needs to pick up the checks from the PHC to then be delivered to the ASHAs. Needless to say, this process is convoluted and inefficient.

(B) Strengthening Sub-centers:

Each sub-center will be given an Untied Fund for local action @ Rs.10,000 per year. It will be deposited in a joint bank account of the ANM and Sarpanch and operated by the ANM in consultation with VHSC. Essential drugs, both AYUSH and allopathic will be supplied in

⁴ At the February 09 meeting of the IAP, we were informed that a decision has been taken to pay Rs. 500/- per month as a fixed amount to the ASHAs in addition to their existing performance based incentives.

adequate quantities to the sub-centers. Additional outlays for MPW (male), additional ANMs wherever needed, new sub-centers as per 2001 population norm, upgrading existing sub-centers including buildings will be considered.

(C) Strengthening PHCs:

In order to improve the quality of preventive, promotive, curative, supervisory and outreach services, the PHCs will be strengthened through: (i) adequate and regular supply of essential quality drugs and equipments; (ii) provision of 24 hour services in 50% PHCs by addressing shortage of doctors through mainstreaming AYUSH manpower; (iii) additional outlays for intensification of ongoing communicable disease control programs, new programs for control of non-communicable diseases, upgrading 100% PHCs for 24 hours referral service, and provision of second doctor at PHC level (1 male, 1 female) on felt-need basis.

(D) Strengthening CHCs for FRU:

All 3,222 existing CHCs should be converted into 24 hours First Referral Units (FRUs) with postings of anesthetists. IPHS norms for infrastructure, staff, equipment, management, etc. should be fulfilled by CHCs. Rogi Kalyan Samitis (RKS) or Patient Welfare Committees should be formed for hospital management. Citizens' Charter at CHC/PHC level should be developed, displayed and complied with. Additional outlays for creation of new CHCs (30 to 50 beds) to meet 2001 population norm and meeting their recurring costs for the NRHM period could be considered.

(E) District Health Plan:

District Health Plan would be prepared by collating Village Health Plans integrating health related sectors. District will become the core unit of planning, budgeting and implementation. Centrally sponsored schemes could be rationalized or modified accordingly in consultation with states. Vertical Health and Family Welfare programs at District and State levels would merge into a common District Health Mission (DHM) and State Health Mission (SHM). There would be a provision of project management unit for each district with contractual appointment of professionals for improved program management.

(F) Converging Hygiene and Sanitation under NRHM:

The existing Total Sanitation Campaign (TSC) is also implemented through PRI. The DHM will, therefore, guide the activities of TSC through VHSC and promote household toilets and school sanitation program. ASHA would be incentivized by DHM for this purpose.

(G) Strengthening Disease Control Programs:

National Disease Control programs for Malaria, TB, Kala Azar, Filariasis, Blindness & Iodine Deficiency and Integrated Disease Surveillance Program shall be integrated under NRHM for improved program delivery. New programs would be launched for control of non-communicable diseases. Provision of a mobile medical unit at district level will be made for improving outreach services.

(H) PPP for Public Health Goals:

This would also include regulation of private sector because it provides 75% of health services in the country. The regulation would be transparent and accountable. DHM must have representation of the private sector. Need-based, thematic and geographic areas for PPP should be identified and guidelines should be developed. Public sector should play the lead role in defining the framework and sustaining the partnership.

(I) New Health Financing Mechanisms:

A Task Group will examine such mechanisms including risk pooling for hospital care. DHMs should progressively move towards paying hospitals for services by way of reimbursement on the principle of “money follows the patient”. Services of healthcare will be standardized and costing will be done periodically by a committee of experts in each state. National Expert Group will monitor and advise on such costs. For all CHCs, the wage component will be paid on monthly basis while all other recurrent costs will be reimbursed for the services rendered from the District Health Fund. Technical, managerial and accounting support will be provided to DHM for managing risk pooling and health security. The central government will provide subsidies to cover a part of the premiums for the poor and monitor the community based health insurance schemes.

(J) Reorienting Medical Education:

In order to support and include rural health issues in the health / medical education, medical and para-medical education facilities would be created in states on felt-need basis. A Task Group will be working out details.

IV. Institutional Mechanisms

Under NRHM, the architectural correction in the public health system is attempted by introducing a whole new set of institutional arrangements. These institutions are proposed right from the village level to the national level. VHSC is a new committee proposed at the village level with membership of Panchayat representatives, ANM/MPW, Anganwadi Worker, teacher, ASHA and community health volunteers. Similarly RKS is proposed for management of public hospitals at the block level. DHM with leadership of Zila Parishad and Head of District Health Department as convener and having representatives of all relevant departments, NGOs, private professionals, etc. is an integral part of NRHM at the district level. SHM chaired by the Chief Minister and co-chaired by the Health Minister with Health Secretary as convener and representatives from related departments, NGOs and private professionals is the state level body proposed. In all these institutions, systematically an effort is made to involve representatives of public, community and private professionals. The NRHM Steering Group chaired by Union Health Minister and Deputy Chairman of Planning Commission, Ministers of Panchayati Raj, Rural Development, Human Resource Development and Public Health professionals as members to provide policy support and guidance to NRHM is constituted at the national level. Integration of the departments of health and family welfare at national, state and district levels is proposed. The executive body of NRHM will be the Empowered Program Committee chaired by Secretary, HFW and standing Mentoring Group would guide and oversee implementation of ASHA initiative.

All these institutions and the program itself would require considerable technical support. This is sought to be achieved by repositioning the existing health resource institutions like Population Research Centers (PRCs), Regional Resource Centers (RRCs), State Institute of Health and Family Welfare (SIHFW). Moreover, NGOs as resource organizations will be involved. It would also require strengthening health information system. However, the basic institutions proposed are: (a) Program Management Support Centre (PMSC); and (b) Health Trust of India (HTI). PMSC will have management inputs and manpower in all relevant fields of health management to ensure improved governance with empowerment of communities through IT based systems like e-banking, social audit and right to information. The HTI is proposed to be a knowledge institution with participation of PRIs/NGOs, etc. and networking skills. It will also serve as a Think Tank for long-term vision and building relevant capacities of PRIs, etc.

Regarding the role of the state governments, NRHM would provide conceptual framework and the states are expected to work out operational modalities through their state

action plans in consultation with the NRHM Steering Group. NRHM would prioritize funding for addressing inter-state and intra-district disparities in health infrastructure and indicators. States are expected to sign Memorandum of Understanding (MoU) with the Centre indicating their commitment to increase contribution to Public Health Budget (by 10% each year), increased devolution to PRIs as per 73rd Constitution Amendment Act, and performance benchmarks for release of funds.

Role of PRIs is critical for the success of NRHM. States would commit to devolve higher funds to PRIs. It is the DHM led by the Zila Parishad that would guide, control and manage all public health institutions in the district, i.e., sub-centers, PHCs and CHCs. ASHA will be selected by and be accountable to the Village Panchayat. The VHSC of the Panchayat would prepare the Village Health Plan to promote inter-sectoral integration. ANM will operate her joint bank account with Sarpanch for utilizing the Untied Fund of Rs.10,000 per year for local action in consultation with the VHSC. PRI is also involved in hospital management through RKS. For all this, members of PRIs have to be provided regular training. The NGOs will provide their inputs at all the levels besides getting involved in the social audit.

In order to revitalize local health traditions, AYUSH manpower and drugs will be provided at all levels – from the drug kit of ASHA to an additional AYUSH doctor at PHC to two rooms for AYUSH practitioner at CHC.

V. Funding Arrangements

NRHM will subsume all the health and family welfare programs including RCH-II, National Disease Control Programs for Malaria, TB, Kala Azar, etc. Thus, the budget for NRHM will consist of all these existing programs as well. NRHM envisages an incremental 30% budget over existing budgetary outlays every year to meet the goal of increasing the public health outlay from 0.9% of GDP to 2 to 3% of GDP. The states are expected to raise their contributions by minimum 10% per year to support the program. The funds from the Centre will be released to states in the form of Financial Envelopes with high weight age to the 18 HFS.

VI. Monitoring and Evaluation

Since NRHM has overall time limit of 7 years from 2005-12, broad timelines for major components of the program are specified as under:

1. Merger of Multiple Societies Constitution of District/State Mission	..	June 2005
2. Provision of additional generic drugs At SC/PHC/CHC level	..	December 2005
3. Operational Program Management Units	..	2005-06
4. Preparation of Village Health Plans	..	2006
5. ASHA at village level (with Drug Kit)	..	2005-2008

6. Upgrading of Rural Hospitals	..	2005-2007
7. Operationalizing District Planning	..	2005-2007
8. Mobile Medical Unit at district level	..	2005-2008

Such a broad calendar of activities is useful for monitoring the progress. For evaluation, clear outcomes of the NRHM as the targets are required to be specified. The Mission Document specifies such targets to be achieved by the year 2012. Some of the main targets are:

- ✓ IMR reduced to 30/1000 live births.
- ✓ MMR reduced to 100/100,000 live births.
- ✓ Total Fertility Rate reduced to 2.1
- ✓ Upgrading CHCs to IPHS norms.
- ✓ Increase utilization of FRUs from less than 20% to 75%
- ✓ Engaging female ASHAs in every village with drug kit for generic ailments.
- ✓ Availability of generic drugs for common ailments at sub-centre and hospital level.
- ✓ Good hospital care through assured availability of doctors, drugs, and quality service at PHC/CHC level.
- ✓ Improved facility for institutional delivery through provision of transport to the Below Poverty Line (BPL) families.
- ✓ Availability of assured healthcare at reduced financial risk through Community Health Insurance.
- ✓ Provision of household toilets.
- ✓ Improved outreach services through mobile medical unit at district level.

For monitoring and evaluation of the program, health MIS should be developed upto CHC level. Sub-centers, PHCs and CHCs would be reporting on their performance regularly to the people's bodies like Panchayats, RKS and DHM. DHM would also monitor compliance to Citizens' Charter at the CHC level. Annual district reports, state reports and national reports to be tabled in the elected bodies at respective levels. External evaluation/social audits through professionals and NGOs and mid-course reviews and corrections are also provided in the program design.

Chapter III Progress of NRHM So Far

I. Data Sources and Basic Limitation

Out of the 7 years of the NRHM from 2005-06 to 2011-12, by now 4 years have passed and the timelines for all major components of the program as explicitly stated in the NRHM Mission Document (2005) have passed. It is, therefore, a good time for stock-taking. In the present section, we consider readily available secondary data to examine the NRHM progress made in all the states in terms of the major components, strategies, institutional mechanisms and impact on health outcomes. The secondary sources of data consist of : (i) District Level Health Surveys (DLHS) regularly conducted every 4-5 years in the country since 1998; (ii) National Family Health Surveys (NFHS) conducted regularly; (iii) Sample Registration System (SRS) surveys conducted regularly every 4-5 years; and (iv) NRHM-MIS data made available on the MoH website representing the latest available position (December, 2008). Most of these data are readily available at the state level and also at the district level. Since primary healthcare is a state subject in India, and since NRHM strategy also considers states as high or non-high focus, we consider states as the unit of analysis.

II. Performance of NRHM by Major Components

Since NRHM primarily represents architectural improvements in the public health system in the rural areas, we review the performance of the Mission at different levels starting from the bottom. Thus, we have the major components of NRHM as:

- a) Village level – Trained ASHA with drug kit and VHSC
- b) Sub-center level – ANM and number of villages handled
- c) PHC level – 24 hours PHCs and AYUSH
- d) CHC level – FRU and Staff Nurses on contract
- e) District level – NRHM Fund and RKS
- f) State level – NRHM budget allocation

Against these program inputs, there are health outputs and outcome indicators to be considered. We first carry out the performance review by all these levels.

It is important to note here that methodologically the correct assessment of impact of an intervention is by comparing the situations **with and without** the intervention rather than **before and after** the intervention. This is because if a particular health indicator was improving over time when the intervention was not made, there are all possibilities that it would have continued improving even in the absence of the intervention. Therefore, the intervention would be productive only when the rate of improvement observed in the past accelerates when the intervention is made. If, on the other hand, the rate of improvement falls, the intervention in all probabilities has not succeeded or has proved counterproductive even when the indicator shows improvement in absolute terms on the fact of it. The usual analysis without realizing this methodological issue can be seriously misleading. Fortunately, for most of the health output/outcome indicators, we have data on 3 points of time so that we can extrapolate linearly the value from the first two points to compare it with the observed value at the third point. For example, DLHS-1 data pertain to 1998-99, DLHS-2 data to 2002-04; and DLHS-3 data to 2007-08. In this case, the extrapolated value based on the assumption of the linear trend continuing in 2007-08 would be:

$$E(X_3) = X_2 + (4/5)(X_2 - X_1) = 1.8X_2 - 0.8X_1$$

Now if X_3 is compared with $E(X_3)$, we can say whether NRHM has made a positive or negative impact on the indicator. For this purpose, a simple comparison of X_3 with X_2 is not valid.

(a) At Village Level :

Since trained ASHA is the most critical element in the NRHM where the Government of India has accepted to meet her costs of training and incentives, the progress of NRHM can be viewed in terms of presence of trained ASHA per 1000 rural population (as on December, 2008) and the health output and outcome indicators for different states. **Tables 3 to 8** provide this assessment. It can be observed from the tables that in 9 High Focus States (HFS), the number of trained ASHA per 1000 rural population is more than one. Except Himachal Pradesh, this number is very close to one. However, in the Non-High Focus States (NHFS), the number of trained ASHAs is considerably less. NRHM seems to have achieved reduction in regional disparity in basic health infrastructure at the village level. **Table 9** provides time profile of selection of ASHA in different states beginning from 2005-06 to 2008-09. It also provides the NRHM Fund utilization rate by years.

Table 3: ASHA and Percentage of Women Taking at Least 3 ANC Checkups

Name of the state	Total number of ASHA trained per 1000 rural population (Dec 2008)	Women taking at least 3 ANC checkups (%) (DLHS 1)	Women taking at least 3 ANC checkups (%) (DLHS 2)	Women taking at least 3 ANC checkups (%) (DLHS 3)	Extrapolated % of 3ANCs without NRHM	States in which it has improved (1)/ and where it has worsened (0)
High Focus States						
Bihar	0.91	16	16	26.4	16	1
Chhattisgarh	1.96	38.5	44.4	51.2	49.12	1
Himachal Pradesh	0.41	57.2	64.9	59.4	71.06	0
Jharkhand	1.38	27.5	27.5	30.9	27.5	1
Madhya Pradesh	1.06	26	32.3	34.2	37.34	0
Orissa	1	43.7	41.7	54.6	40.1	1
Rajasthan	0.81	28.3	28.8	27.7	29.2	0
UP	0.89	19.6	21.5	21.9	23.02	0
Uttarakhand	1.39	19.3	21.2	32.3	22.72	1
Assam	1.01	29.2	39.4	45.1	47.56	0
Meghalaya	2.55	33.5	42.8	39.4	50.24	0
Mizoram	1.58	66.6	54	62.6	43.92	1
Sikkim	0.93	40.6	66.7	69.9	87.58	0
Tripura	2.34	51	62.7	44	72.06	0
Non High Focus States						
Andhra Pradesh	0.14	87.5	86	89.4	84.8	1
Chandigarh	-	73	73.6	77.6	74.08	1
Delhi	2.1	77.2	67.2	71.6	59.2	1
Goa	-	95.2	84.3	95.8	75.58	1
Gujarat	0.18	55	57.3	54.9	59.14	0
Haryana	-	41.3	43.1	51.9	44.54	1
Karnataka	0.48	78	78.6	81.6	79.08	1
Kerala	0.02	98.3	96.5	95.3	95.06	1
Maharashtra	0.13	65.8	69.2	74.5	71.92	1
Puducherry	-	95.8	97.8	87.8	99.4	0
Punjab	-	56.4	63.5	64.6	69.18	0
Tamil Nadu	-	94.2	94	95.6	93.84	1
West Bengal	0.18	55.4	62.7	67	68.54	0

In six HFS, NRHM has resulted in the desired output of increasing the percentage of women taking at least 3 ANC checkups. NRHM has worked much better in the NHFS.

Source: District Level Household Surveys

DLHS-1 1998/99

DLHS-2 2002/04

DLHS-3 2007/08

Table 4: ASHA and Immunization Rate among children						
Name of the state	Total number of ASHA trained per 1000 rural population (Dec 2008)	Fully immunized children in % (DLHS 1)	Fully immunized children in % (DLHS 2)	Fully immunized children in % (DLHS 3)	Extrapolated immunization rate without NRHM	States in which it has improve (1)/ and where it has worsened (0)
High Focus States						
Bihar	0.91	20.7	20.7	41.4	20.7	1
Chhattisgarh	1.96	56.9	56.9	59.3	56.9	1
Himachal Pradesh	0.41	74.4	79.3	79.3	83.22	0
Jharkhand	1.38	25.7	25.7	54.1	25.7	1
Madhya Pradesh	1.06	30.4	30.4	36.2	30.4	1
Orissa	1	57.8	53.3	62.4	49.7	1
Rajasthan	0.81	37.1	23.9	48.8	13.34	1
UP	0.89	25.8	25.8	30.3	25.8	1
Uttarakhand	1.39	44.5	44.5	59.8	44.5	1
Assam	1.01	46.7	16	48	-8.56	1
Meghalaya	2.55	32.7	13.5	27.6	-1.86	1
Mizoram	1.58	68.4	32.6	50	3.96	1
Sikkim	0.93	65.6	52.7	77.8	42.38	1
Tripura	2.34	46.3	32.6	38.9	21.64	1
Non High Focus States						
Andhra Pradesh	0.14	74.5	62	67.1	52	1
Chandigarh	-	61.5	53.5	71.7	47.1	1
Delhi	2.1	84.8	59.2	70.8	38.72	1
Goa	-	88.6	76.9	93.4	67.54	1
Gujarat	0.18	58.1	54	52.5	50.72	1
Haryana	-	66	59.1	63.6	53.58	1
Karnataka	0.48	71.8	67.8	76.7	64.6	1
Kerala	0.02	84	78.5	79.5	74.1	1
Maharashtra	0.13	79.7	70.9	74	63.86	1
Puducherry	-	95.3	89.3	80.4	84.5	0
Punjab	-	72.9	72.9	79.9	72.9	1
Tamil Nadu	-	91.5	91.4	83.2	91.32	0
West Bengal	0.18	51.5	5.3	75.8	-31.66	1

Except Himachal Pradesh among the HFS and Tamil Nadu among NHFS, all states have been positively impacted by NRHM in terms of increasing the rate of fully immunized children.

Source: District Level Household Surveys

DLHS-1 1998/99

DLHS-2 2002/04

DLHS-3 2007/08

Table 5: ASHA and Institutional Delivery Rate

Name of the state	Total number of ASHA trained per 1000 rural population (Dec 2008)	Institutional delivery DLHS-1 (X1)	Institutional delivery DLHS-2 (X2)	Institutional delivery DLHS-3 (X3)	Extrapolated Institutional delivery without NRHM (X3)#	States where it has improved (1) and where it has worsened (0)
High Focus States						
Bihar	0.91	14.9	18.8	27.7	21.92	1
Chhattisgarh	1.96	10.9	18.1	18.1	23.86	0
Himachal Pradesh	0.41	31.7	45.1	48.2	55.82	0
Jharkhand	1.38	17.3	21.2	17.8	24.32	0
Madhya Pradesh	1.06	21.5	28.7	47.1	34.46	1
Orissa	1	23.4	30.8	44.3	36.72	1
Rajasthan	0.81	22.5	30.3	45.5	36.54	1
UP	0.89	16.2	21.4	24.5	25.56	0
Uttarakhand	1.39	18.8	24	30	28.16	1
Assam	1.01	23.8	23.2	35.3	22.72	1
Meghalaya	2.55	33.4	32.5	24.4	31.78	0
Mizoram	1.58	58.9	52.6	55.9	47.56	1
Sikkim	0.93	32.3	57.8	49.8	78.2	0
Tripura	2.34	46.1	61.1	46.3	73.1	0
Non High Focus States						
Andhra Pradesh	0.14	50.6	59.4	71.8	66.44	1
Chandigarh	-	67.7	47.4	76.1	31.16	1
Delhi	2.1	70	50	68.6	34	1
Goa	-	93.8	91.2	96.3	89.12	1
Gujarat	0.18	46.1	52.2	56.5	57.08	0
Haryana	-	25.7	35.7	46.9	43.7	1
Karnataka	0.48	50	57.9	65.1	64.22	1
Kerala	0.02	97	97.6	99.4	98.08	1
Maharashtra	0.13	57.1	57.9	63.6	58.54	1
Puducherry	-	92.2	97.2	99.1	100	0
Punjab	-	40.5	48.9	63.3	55.62	1
Tamil Nadu	-	78.8	86.2	94.1	92.12	1
West Bengal	0.18	38.9	47	49.2	53.48	0

NRHM is successful in 7 HFS and all except Gujarat and West Bengal among NHFS in increasing the rate of institutional deliveries.

Source: District Level Household Surveys

DLHS-1 1998/99

DLHS-2 2002/04

DLHS-3 2007/08

Table 6: ASHA and Infant Mortality Rate (IMR)

Name of the state	Total number of ASHA trained per 1000 rural population (Dec 2008)	IMR for 1999 (SRS) (X1)	IMR for 2003 (SRS) (X2)	IMR# for 2007 (SRS) (X3)	Extrapolated IMR without NRHM (X3*)	States where it has improved (1) and where it has worsened (0)
High Focus States						
Bihar	0.91	63	60	58	57	0
Chhattisgarh	1.96	78	70	59	62	1
Himachal Pradesh	0.41	62	49	47	36	0
Jharkhand	1.38	71	51	48	31	0
Madhya Pradesh	1.06	90	82	72	74	1
Orissa	1	97	83	71	69	0
Rajasthan	0.81	81	75	65	69	1
UP	0.89	84	76	69	68	0
Uttarakhand	1.39	52	41	48	30	0
Assam	1.01	76	67	66	58	0
Meghalaya	2.55	56	57	56	58	1
Mizoram	1.58	19	16	23	13	0
Sikkim	0.93	49	33	34	17	0
Tripura	2.34	42	32	39	22	0
Non High Focus States						
Andhra Pradesh	0.14	66	59	54	52	0
Chandigarh	-	28	19	27	10	0
Delhi	2.1	31	28	36	25	0
Goa	-	21	16	13	11	0
Gujarat	0.18	63	57	52	51	0
Haryana	-	68	59	55	50	0
Karnataka	0.48	58	52	47	46	0
Kerala	0.02	14	11	13	8	0
Maharashtra	0.13	48	42	34	36	1
Puducherry	-	22	24	25	26	1
Punjab	-	53	49	43	45	1
Tamil Nadu	-	52	43	35	34	0
West Bengal	0.18	52	46	37	40	1

NRHM is successful in only 4 HFS and only 3 NHFS in reducing IMR. In the rest of the states it has not been successful. Even for those states where it has succeeded in reducing IMR, it is nowhere near the targeted rate of decline.

Source: Sample Registration System

SRS-1 1999

SRS-2 2003

SRS-3 2007

Table 7: ASHA and Unmet Need of Health Infrastructure				
Name of the state	Total number of ASHA trained per 1000 rural population (Dec 2008)	Unmet need @ (DLHS 2)	Unmet need (DLHS 3)	Increase (+)/Decrease (-) (Between DLHS 2 and 3)
High Focus States				
Bihar	0.91	38.3	37.2	-1.1
Chhattisgarh	1.96	22.1	20.9	-1.2
Himachal Pradesh	0.41	11.8	15.6	3.8
Jharkhand	1.38	34.2	34.7	0.5
Madhya Pradesh	1.06	21.2	19.3	-1.9
Orissa	1	19.8	24	4.2
Rajasthan	0.81	22.1	17.9	-4.2
UP	0.89	34.3	33.8	-0.5
Uttarakhand	1.39	26.9	22.5	-4.4
Assam	1.01	23.6	26.1	2.5
Meghalaya	2.55	55.3	38	-17.3
Mizoram	1.58	25	16.7	-8.3
Sikkim	0.93	18.2	16.1	-2.1
Tripura	2.34	24.8	14.4	-10.4
Non High Focus States				
Andhra Pradesh	0.14	10.7	8.5	-2.2
Chandigarh	-	15.3	9.3	-6
Delhi	2.1	16.4	14.9	-1.5
Goa	-	43.1	28.8	-14.3
Gujarat	0.18	16.3	20.1	3.8
Haryana	-	14.7	16.3	1.6
Karnataka	0.48	15.1	15.8	0.7
Kerala	0.02	15.1	16.8	1.7
Maharashtra	0.13	12.6	15.6	3
Puducherry	-	16.6	19.8	3.2
Punjab	-	10.3	13.7	3.4
Tamil Nadu	-	18.1	19.4	1.3
West Bengal	0.18	11.2	11.6	0.4
@ Data for unmet need for DLHS 1 not available.				

NRHM is not successful in only 4 HFS, whereas it is successful only in 4 NHFS. However, the unmet needs in NHFS are substantially less than in HFS. Since DLHS-1 did not report data on unmet needs, the comparison is 'before and after' rather than 'with and without' NRHM.

Source: District Level Household Surveys
DLHS-2 2002/04
DLHS-3 2007/08

Table 8: Performance of NRHM - ASHA and Fund Utilization

Category	% of ASHA selected in 2005-06	% of ASHA selected in 2006-07	% of ASHA selected in 2007-08	% of ASHA selected in 2008-09	Utilization 2005-06	Utilization 2006-07	Utilization 2007-08
High Focus States							
Bihar	54.70	32.62	12.68	0	64.95	59.29	92.64
Chhattisgarh	17.09	82.91	0.00	0	71.32	82.87	84.89
HP	0.00	0.00	100.00	0	56.33	64.52	104.21
J&K	28.40	68.90	2.70	0	62.58	44.19	46.29
Jharkhand	3.57	33.72	61.50	1.22	44.41	67.04	76.94
MP	38.87	35.96	20.80	4.37	52.63	78.39	102.64
Orissa	37.17	62.83	0.00	0.00	59.23	72.55	74.18
Rajasthan	49.49	34.95	8.41	7.14	58.41	65.14	85.10
UP	15.03	75.71	7.33	1.93	61.65	61.04	70.94
Uttarakhand	41.36	42.17	16.47	0.00	41.53	47.11	85.91
Arunachal Pradesh	48.08	36.56	13.31	2.05	50.70	57.58	101.65
Assam	34.54	62.31	3.15	0.00	24.97	53.67	91.19
Manipur	0.00	100.00	0.00	0.00	36.35	46.56	64.77
Meghalaya	0.00	89.03	0.00	10.97	29.46	47.85	43.99
Mizoram	0.00	71.47	28.53	0.00	37.10	63.49	130.88
Nagaland	0.00	75.18	1.82	23.00	47.28	84.34	92.92
Sikkim	0.00	81.52	18.48	0.00	45.36	30.48	49.29
Tripura	0.00	18.44	60.06	21.50	58.42	56.31	42.77
Average High Focus	28.55	55.06	14.10	2.29	56.54	63.88	81.61
Non High Focus States							
Andhra Pradesh	0.00	100.00	0.00	0.00	78.52	79.19	80.30
Goa	-	-	-	-	41.86	78.78	74.61
Gujarat	0.00	16.11	83.89	0.00	51.30	69.08	90.52
Haryana	-	-	-	-	63.29	67.31	80.30
Karnataka	0.00	16.14	0.00	83.86	62.25	56.31	105.11
Kerala	0.00	0.00	100.00	0.00	52.73	62.27	74.95
Maharashtra	0.00	0.00	96.61	3.39	57.43	43.89	74.18
Punjab	-	-	-	-	62.27	69.05	93.69
Tamil Nadu	-	-	-	-	65.21	76.75	67.22
West Bengal	-	-	-	-	62.98	80.31	81.89
Average Non High Focus	0	30.02	32.62	37.36	62.41	68.22	85.35
Utilization of NRHM funds = Expenditure / Amount released by GoI.							
<i>Source: NRHM - MIS.</i>							

ASHAs were appointed in a major way in the first two years in HFS, whereas in the NHFS they were appointed in the later two years. NRHM Fund utilization improved substantially in all states except J&K and Tripura from the HFS category. NRHM strategy seems to be working on the whole to improve the utilization of funds at least.

(b) At Sub-Center Level:

At the sub-center level, the role of ANM is crucial. The main health service she provides is for immunization of children and conducting safe deliveries. **Table 9** provides the NRHM-MIS data on average number of villages per ANM and number of sub-centers not having ANMs as a percentage of the total sub-centers in a state along with the rate of full immunization and the rate of institutional deliveries as per the DLHS-3 data for the year 2007-08. It is expected that higher the number of villages handled by an ANM, lower will be the rates of immunization and institutional deliveries. Similarly, greater is the proportion of sub-centers without ANM, lower will be the rates of immunization and institutional deliveries.

(c) At PHC level:

The major intervention at PHC level by NRHM is that it provides for a substantial increase in the number of PHC working for 24 hours per day by providing necessary infrastructure and manpower in terms of additional doctor with AYUSH background. The NRHM-MIS data about the patients utilizing OPD services at PHC are not complete with several high focus and non-high focus states not reporting these data⁵. From whatever data available, **Table 10** provides the assessment. It provides data on number of 24 hours per day PHCs per 100,000 population as a percentage of rural population in 2007-08 for different states. It is expected that higher the number of round the clock PHCs, higher would be the rate of institutional deliveries and higher would be the patients admitted in PHCs.

⁵ This could be a fall out of states not signing the MoU and hence not benchmarking and tracking performance since the NRHM funds are available in any case!

Table 9: ANM and Rates of Immunization and Institutional Deliveries				
Category	Average number of villages handled by ANMs	Number of sub centers not having ANMs as a percentage of total sub centers	Full Immunization (%) DLHS-3	Institutional delivery (%) DLHS-3
High Focus States				
Bihar	4	13.88	41.4	27.7
Chattisgarh	6	30.46	59.3	18.1
Himachal Pradesh	11	11.35	79.3	48.2
Jammu and Kashmir	4	15.89	-	-
Jharkhand	4	-	54.1	17.8
Madhya Pradesh	6	2.76	36.2	47.1
Orissa	8	0.00	62.4	44.3
Rajasthan	3	0.00	48.8	45.5
Uttar Pradesh	6	15.58	30.3	24.5
Uttarakhand	10	9.12	59.8	30.0
Arunachal Pradesh	14	26.39	-	-
Assam	3	1.57	48.0	35.3
Manipur	3	0.00	-	-
Meghalaya	14	0.00	27.6	24.4
Mizoram	1	0.00	50.0	55.9
Nagaland	3	24.43	-	-
Sikkim	3	0.00	77.8	49.8
Tripura	1	10.19	38.9	46.3
Non High Focus States				
Andhra Pradesh	2	17.57	67.1	71.8
Goa	2	0.58	93.4	96.3
Gujarat	3	2.79	52.5	56.5
Haryana	2	31.15	63.6	46.9
Karnataka	4	13.69	76.7	65.1
Kerala	0.3	1.02	79.5	99.4
Maharashtra	4	22.51	74.0	63.6
Punjab	6	19.87	79.9	63.3
Tamil Nadu	2	0.00	83.2	94.1
West Bengal	4	4.40	75.8	49.2

Average number of villages handled by ANM is higher in HFS than NHFS. Similarly sub-centers without ANM are proportionately higher in HFS than NHFS on the whole. NRHM has not succeeded in removing the regional imbalance in the health infrastructure at least at the sub-center level.

Source: District Level Household Survey
DLHS-3 2007/08

Table 10: 24 hrs/day PHCs, Patients Admitted in PHCs and Institutional Deliveries			
Category	Number of 24 by 7 PHC per 100,000 population	Institutional delivery % (DLHS 3)	Patients admitted in PHC as a percentage of rural population in 2007-08
High Focus States			
Bihar	0.85	27.7	0.81
Chhattisgarh	3.64	18.1	0.29
Himachal Pradesh	3.31	55.82	0.00
Jammu and Kashmir	1.51	-	0.23
Jharkhand	1.09	17.8	0.00
Madhya Pradesh	1.38	47.1	1.40
Orissa	0.58	44.3	1.42
Rajasthan	1.58	45.5	0.00
Uttar Pradesh	0.67	24.5	0.00
Uttarakhand	1.31	30	0.09
Arunachal Pradesh	8.85	-	0.00
Assam	1.56	35.3	0.00
Manipur	1.62	-	0.03
Meghalaya	0.34	24.4	0.29
Mizoram	8.41	55.9	2.90
Nagaland	2.49	-	0.00
Sikkim	4.80	49.8	0.64
Tripura	2.77	46.3	1.78
Average	1.16	37.32	0.41
Non High Focus States			
Andhra Pradesh	1.71	71.8	1.46
Goa	3.00	96.3	1.71
Gujarat	0.81	56.5	0.50
Haryana	1.22	46.9	0.11
Karnataka	3.28	65.1	0.00
Kerala	1.33	99.4	0.50
Maharashtra	1.38	63.6	0.48
Punjab	0.99	63.3	0.00
Tamil Nadu	6.63	94.1	1.92
West Bengal	0.96	49.2	0.10
Average	1.98	70.62	0.63

Number of 24 hours/day PHCs is on an average less in HFS than in NHFS. Patients admitted in PHCs are also on average less in HFS than in NHFS. NRHM has not been able to remove the regional imbalance in health infrastructure at PHC level.

Source: District Level Household Survey
DLHS-3 2007/08

Table 11: AYUSH Doctors and PHC-OPD services		
Category	Ratio of number of AYUSH Doctors to total number of PHCs	Patients utilizing PHC OPD services as a percentage of rural population (2007-08)
High Focus States		
Bihar	-	14.63
Chhattisgarh	0.43	11.39
Himachal Pradesh	-	-
Jammu and Kashmir	0.85	9.27
Jharkhand	0.49	0.00
Madhya Pradesh	-	9.95
Orissa	0.90	13.87
Rajasthan	0.40	-
Uttar Pradesh	0.12	-
Uttarakhand	-	3.81
Arunachal Pradesh	0.44	-
Assam	0.38	-
Manipur	0.94	4.28
Meghalaya	0.19	3.13
Mizoram	0.18	25.24
Nagaland	0.25	-
Sikkim	0.13	21.56
Tripura	0.75	5.69
Average	0.68	12.21
Non High Focus States		
Andhra Pradesh	-	49.83
Goa	-	43.29
Gujarat	0.516	33.97
Haryana	-	12.18
Karnataka	0.398	-
Kerala	0.081	89.97
Maharashtra	0.069	18.98
Punjab	0.202	28.10
Tamil Nadu	-	202.69
West Bengal	-	41.13
Average	0.20	56.69

Number AYUSH Doctor's per PHC on average higher in HFS than in NHFS. NHRM seems to be successful in removing the regional imbalance in this part of the health infrastructure. However, patients utilizing PHC-OPD services are considerably higher in NHFS than in HFS. NRHM has not achieved so far the desired impact on health output.

(d) At CHC Level:

Here also the NRHM-MIS data on in-patients and out-patients are not completely reported in all states. Whatever data are available from secondary sources are reported in **Table 12**. The table provides data on CHCs functioning as the first referral unit (FRU) as a percentage of total CHCs, Staff Nurses appointed on contract basis out of NRHM funds per CHC, patients utilizing CHC-OPD and patients admitted to CHC as percentages of rural population in different states.

(e) At District Level:

Since NRHM is envisaged to be totally coordinated at the district level by the District Health Mission under the leadership of the Zila Parishad, review of the progress of NRHM at the district level should consider utilization of all public health facilities existing in a district. **Table 13** provides the relevant data. Moreover, an important element of NRHM is the provision of a Flexi Pool budget. **Table 14** considers its allocation over the last 3 years and **Table 15** considers its utilization over the last 3 years. Moreover, **Table 16** provides data on the quality of health infrastructure in the form of round the clock health facilities and public participation in the form of RKS and VHSCs working on the ground as well as the utilization of the Immunization Fund.

Table 12: CHC as FRU, Staff Nurse on Contract and Patients

Category	CHC functioning as FRU as a percentage of total number of CHCs	Patients utilizing CHC OPD services as a percentage of rural population (2007-08)	Patients admitted in CHC as a percentage of rural population (2007-08)	Patients being admitted to CHC as a percentage of rural population (2007-08)
High Focus States				
Bihar	38.6	0.42	0	0
Chattisgarh	54.2	11.14	0.64	0.64
Himachal Pradesh	33.8	-	0.00	0.00
Jammu and Kashmir	30.0	15.31	0.96	0.96
Jharkhand	8.2	-	0.00	0.00
Madhya Pradesh	4.4	16.28	2.17	2.17
Orissa	-	26.20	2.69	2.69
Rajasthan	13.1	-	-	-
Uttar Pradesh	6.0	-	-	-
Uttarakhand	73.5	20.91	0.34	0.34
Arunachal Pradesh	0.8	-	-	-
Assam	8.3	-	-	-
Manipur	-	4.84	0.27	4.84
Meghalaya	-	5.20	0.00	5.20
Mizoram	-	9.43	0.96	9.43
Nagaland	-	-	-	-
Sikkim	-	19.01	1.25	19.01
Tripura	-	3.20	1.20	3.20
Average	14.48	11.08	1.83	2.17
Non High Focus States				
Andhra Pradesh	71.9	39.58	3.28	39.58
Goa	100.0	17.71	1.71	17.71
Gujarat	12.5	22.25	2.71	22.25
Haryana	15.1	11.51	0.40	11.51
Karnataka	2.0	4.15	0.19	4.15
Kerala	16.8	66.69	1.09	66.69
Maharashtra	36.1	12.25	1.03	12.25
Punjab	62.7	20.74	0.69	20.74
Tamil Nadu	55.5	-	-	-
West Bengal	2.0	40.33	1.68	40.33
Average	27.85	27.96	1.62	27.96

CHCs working as first Referral Unit are in greater percentage in NHFS than in HFS. Staff nurse on contract per CHC is, however, higher in HFS than in NHFS. NRHM is partially successful in reducing regional imbalance in health infrastructure. Number of patients in CHC-OPD is higher in NHFS than in HFS. However, patients admitted in CHC are higher in HFS than in NHFS. There are mixed results in health output.

Table 13: Utilization of Public Health Facilities – DH, CHC and PHC			
Category	Percentage patients admitted in DH to rural population (2007-08)	Percentage patients admitted in CHC to rural population (2007-08)	Percentage patients admitted in PHC to rural population (2007-08)
High Focus States			
Bihar	0.36	-	0.81
Chattisgarh	2.28	0.64	0.29
Himachal Pradesh	23.90	-	-
Jammu and Kashmir	0.55	0.96	0.23
Jharkhand	-	-	-
Madhya Pradesh	2.43	2.17	1.40
Orissa	2.21	2.69	1.42
Rajasthan	-	-	-
Uttar Pradesh	-	-	-
Uttarakhand	0.41	0.34	0.09
Arunachal Pradesh	-	-	-
Assam	-	-	-
Manipur	0.94	0.27	0.03
Meghalaya	1.70	-	0.29
Mizoram	7.98	0.96	2.90
Nagaland	0.47	-	-
Sikkim	1.25	1.25	0.64
Tripura	0.54	1.20	1.78
Average utilization for High focus states	2.05	1.83	0.41
Non High Focus States			
Andhra Pradesh	1.09	3.28	1.46
Goa	5.57	1.71	1.71
Gujarat	2.44	2.71	0.50
Haryana	1.22	0.40	0.11
Karnataka	1.38	0.19	0.00
Kerala	1.29	1.09	0.50
Maharashtra	0.91	1.03	0.48
Punjab	1.00	0.69	-
Tamil Nadu	2.20	-	1.92
West Bengal	0.98	1.68	0.10
Average utilization for Non High focus states	1.34	1.62	0.63

While patients admitted in PHC are less in HFS than in NHFS, patients admitted in CHC and DH are more in HFS than in NHFS. Village level health infrastructural imbalances across states could be the cause. NRHM has not succeeded so far to remove it.

Table 14: Allocation to NHRM Flexi Pool as percentage of Total NRHM allocation			
Category	2006-07	2007-08	2008-09
High Focus States			
Bihar	24.47	37.65	26.79
Chattisgarh	21.04	28.52	20.88
Himachal Pradesh	14.03	21.54	14.91
Jammu and Kashmir	20.93	27.75	19.31
Jharkhand	20.78	31.67	22.38
Madhya Pradesh	25.86	34.32	23.58
Orissa	22.82	32.90	24.42
Rajasthan	24.48	31.84	23.70
Uttar Pradesh	25.69	35.17	25.20
Uttarakhand	20.82	30.99	20.59
Arunachal Pradesh	36.19	30.49	20.37
Assam	54.79	50.18	39.11
Manipur	46.79	43.24	32.55
Meghalaya	46.02	44.77	32.50
Mizoram	33.29	29.65	20.30
Nagaland	42.80	42.89	31.81
Sikkim	39.77	36.85	20.07
Tripura	50.96	43.96	35.58
Average allocation for High focus states	29.25	36.28	26.20
Non High Focus States			
Andhra Pradesh	24.50	30.09	21.88
Goa	19.70	24.43	19.16
Gujarat	21.63	31.64	22.87
Haryana	24.43	36.52	24.05
Karnataka	24.06	31.69	21.48
Kerala	24.47	34.69	23.44
Maharashtra	25.60	34.20	23.78
Punjab	25.69	35.61	24.20
Tamil Nadu	24.87	33.98	22.85
West Bengal	25.16	35.28	22.94
Average allocation for Non high focus states	24.51	33.24	22.87

Flexi Pool allocation under NRHM has not been consistent over years in both HFS and NHFS categories.

Flexi Pool allocation is higher for HFS than for NHFS. This is in line with NRHM policy.

Table 15: Utilization of NHRM Flexi Pool budget (= Expenditure/Amount Released)			
Category	2008-09 (up-till Dec 08)	2007-08	2006-07
High Focus States			
Bihar	14.62	8.85	10.48
Chattisgarh	26.87	68.36	66.40
Himachal Pradesh	90.79	55.04	23.70
Jammu and Kashmir	475.11	29.08	11.28
Jharkhand	178.62	49.65	1.93
Madhya Pradesh	20.93	69.45	34.45
Orissa	47.07	34.82	42.53
Rajasthan	130.88	54.60	16.29
Uttar Pradesh	310.39	19.85	17.09
Uttarakhand	87.72	39.87	9.05
Arunachal Pradesh	-	143.88	26.81
Assam	51.63	73.98	18.45
Manipur	-	90.01	4.25
Meghalaya	26.88	41.82	13.02
Mizoram	101.91	221.90	12.06
Nagaland	69.13	111.50	55.48
Sikkim	-	12.80	6.26
Tripura	46.28	15.34	22.59
Average Utilization	70.98	45.87	21.89
Non High Focus States			
Andhra Pradesh	43.22	42.36	49.83
Goa	17.23	80.85	31.25
Gujarat	146.66	96.74	27.10
Haryana	38.06	68.44	6.12
Karnataka	84.28	84.11	5.04
Kerala	89.56	51.48	14.64
Maharashtra	48.30	74.59	7.80
Punjab	16.51	81.94	12.14
Tamil Nadu	37.21	40.46	27.92
West Bengal	50.17	66.43	46.97
Average Utilization	59.04	62.85	25.92

Utilization of Flexi Pool Budget has been increasing in both HFS and NHFS categories of States over years. Utilization was higher in NHFS than in HFS during 2006-07 and 2007-08. However, HFS are likely to surpass NHFS in 2008-09. NRHM strategy of Flexi Pool budget seems to be working as far as expenditures are concerned.

Table 16: 24 hrs/day Health Facilities, RKS, VHSC and Immunization Fund				
Category	Total number of 24 hrs health facilities as a percentage of total health facilities	RKS as a percentage of total health facilities	Number of Village Health and Sanitation Committee per 1000 population (2007-08)	Percentage utilization of Immunization fund (Exp/ Allocation) (2007-08)
High Focus States				
Bihar	35.27	26.35	1.21	7.69
Chattisgarh	84.82	131.13	0.76	16.92
Himachal Pradesh	37.20	64.46	1.45	22.50
Jammu and Kashmir	28.85	101.28	0.45	57.00
Jharkhand	40.94	77.72	0.35	54.13
Madhya Pradesh	37.73	80.90	0.18	68.14
Orissa	12.82	79.34	0.33	40.17
Rajasthan	42.49	100.85	2.72	31.74
Uttar Pradesh	23.69	35.30	1.05	75.85
Uttarakhand	29.02	28.71	1.42	46.67
Arunachal Pradesh	68.80	63.20	2.31	22.50
Assam	54.64	124.45	1.40	40.13
Manipur	40.45	82.02	0.19	30.00
Meghalaya	6.06	75.00	1.09	50.00
Mizoram	66.22	77.03	0.34	31.11
Nagaland	46.55	110.34	0.18	3.33
Sikkim	96.55	82.76	1.07	31.43
Tripura	87.64	98.88	0.34	25.00
Average for High focus states	34.68	67.28	0.52	47.19
Non High Focus States				
Andhra Pradesh	56.50	100.44	0.37	33.42
Goa	75.00	50.00	0.50	9.16
Gujarat	20.75	94.05	0.47	10.90
Haryana	37.77	105.29	0.31	9.19
Karnataka	61.19	123.27	0.53	24.56
Kerala	31.51	107.90	0.72	7.90
Maharashtra	36.48	98.23	0.61	
Punjab	25.45	25.00	0.67	10.50
Tamil Nadu	-	106.85	0.45	21.67
West Bengal	46.14	103.03	0.21	15.99
Average for Non High focus states	42.41	100.77	0.45	23.43

Percentage of 24 hrs/day Health Facilities is higher in NHFS than in HFS. RKS per Health Facility is substantially less in HFS than in NHFS. VHSCs, however, are more in HFS than in NHFS and utilization of Immunization Fund is also higher in HFS than in NHFS. Impact of NRHM at Village level public participation is felt, but not at higher levels.

Table 17: Growth of State Health & Family Welfare Budget Allocations					
States	2005-06	2006-07	2007-08	2008-09	% Increase
High Focus States					
Bihar	101485	115275	133157	163464	61.07
Chattisgarh	33136	41760	64668	88698	167.68
Himachal Pradesh	39326	44106	45044	58638	49.11
Jammu and Kashmir	67097	75029	91122	95959	43.02
Jharkhand	92977	98463	92122	99708	07.24
Madhya Pradesh	98910	114519	131974	162892	64.69
Orissa	48702	60819	87407	104885	115.36
Rajasthan	120220	131279	158973	210561	75.15
Uttar Pradesh	306743	430183	463645	562587	83.41
Uttarakhand	35172	39473	59314	56902	61.78
Arunachal Pradesh	7594	12288	14647	9302	22.49
Assam	41101	57211	119614	139768	240.06
Manipur	8296	9658	17161	16517	99.10
Meghalaya	11125	11717	16012	17587	58.09
Mizoram	7701	8261	10356	15726	104.21
Nagaland	12128	12852	14591	17355	43.10
Sikkim	5983	5676	8063	8605	43.82
Tripura	15449	16787	26906	26008	68.35
Non High Focus States					
Andhra Pradesh	162219	186068	248742	321720	98.32
Goa	13923	14538	16976	18715	34.42
Gujarat	106933	114611	132182	154463	44.45
Haryana	46712	48779	59089	68403	46.44
Karnataka	114619	134961	190146	242403	111.49
Kerala	99918	113772	145456	154213	54.34
Maharashtra	221453	232978	299736	302625	36.65
Punjab	69882	69867	85784	96849	38.59
Tamil Nadu	163911	167051	210194	272186	66.06
West Bengal	158412	167812	210504	229010	44.57

All these figures are at current prices. The % increase is over three years. Except Jharkhand and Arunachal Pradesh from the HFS, all States have increased their HF& W budget by more than 10% per year over the past three years. Thus, one of the MoU requirements is fulfilled with or without a formal MoU.

(f) At State Level:

The review of the progress of NRHM at the state level is implicitly done for all of the above indicators on health inputs, outputs and outcomes. However, the critical element of concern in NRHM at the state level is the allocation of budget to the health sector. The NRHM visualized an annual increase of at least 10% in the state budget allocation to the sector through a formal MoU to be signed by each state with the centre. The **Table 17** provides data on the growth of state health budget allocation. **Table 18**, then, provides NRHM budget allocation as a ratio of the state health budget.

Table 18: Ratio of NRHM Budget Allocation to State Health Budget		
Year	High Focus States	Non-High Focus States
2005-06	0.016	0.008
2006-07	0.021	0.010
2007-08	0.020	0.011
2008-09	0.045	0.016
Average	0.025	0.012

Source: NRHM – MIS

NRHM is consistently allocating higher amount to HFS than to NHFS. The NRHM allocation is rising over the last four years in both categories of states but the proportion is very small.

III. Health Output/Outcomes and NRHM

Considering the major goals of NRHM and their sharp focus on the two Millennium Development Goals (MDGs) of reducing MMR and IMR, a mid-term review of the progress achieved by the program have to consider the impact on these and related indicators. NRHM-MIS does not report any information on maternal deaths; and other secondary sources of data in India also do not report estimates of MMR on a regular basis. However, there are some related health input/output indicators that can be used as a proxy. We have four such health output indicators besides the outcomes indicators of infant mortality rate (IMR). These are: Institutional Delivery Rate (IDR), Percentage of Women Getting at least 3 ANC checkups, Full Immunization Rate among Children (IRC) and Unmet Needs of Health Infrastructure (UNHI). In the previous section, we have seen that there is considerable variation in the levels of these 5 indicators across states in the year 2007-08. We have also seen that the impact of NRHM on these 5 indicators vary substantially from state to state when ‘with and without’ NRHM scenarios are compared. If we can explain such variations with the help of some of the major components of NRHM, it would be a very useful input for future interventions within NRHM in the country.

Chapter IV Health Indicators – Regression Results

We begin by considering the following 10 models for the 5 health indicators and changes therein:

A. Infant Mortality Ratio (IMR):

1. IMR = f (ASHA/Pop., Villages / ANM, 24 hours PHC / Pop., % CHC as FRU, % 24 hrs HF, RKS / HF, % JSY Deliveries, Dummy for NHFS)

Table 19: Regression Results for IMR and change in IMR						
Variables	Coefficient	t-statistic	P-value	R-square	Adjusted R-square	F-Significance
IMR (Level) on All Variables						
Trained ASHA per 1000 pop	-8.615	-1.390	0.188	0.6009	0.3554	0.0732
Villages per ANM	1.048	0.928	0.370			
24 hrs PHC per lac pop	-5.924	-3.132	0.008			
% CHC as FRU	-0.054	-0.362	0.723			
All 24 hrs HF as % of total HF	0.290	1.291	0.219			
RKS as % of total HF	0.067	0.522	0.611			
JSY as % of total deliveries	-0.032	-0.768	0.456			
Non High-focus States (Dummy)	-27.195	-2.713	0.018			
IMR (Level) on Selected Variables						
Trained ASHA per 1000 pop	-5.642	-1.026	0.319	0.5173	0.4037	0.0111
Villages per ANM	-	-	-			
24 hrs PHC per lac pop	-5.143	-3.419	0.003			
% CHC as FRU	-	-	-			
All 24 hrs HFS as % of total HF	-	-	-			
RKS as % of total HF	0.112	1.212	0.242			
JSY as % of total deliveries	-	-	-			
Non High-focus States (Dummy)	-24.884	-2.811	0.012			
IMR (Change) on All Variables						
Trained ASHA per 1000 pop	-2.045	-0.565	0.582	0.4146	0.0544	0.3943
Villages per ANM	0.696	1.056	0.310			
24 hrs PHC per lac pop	-1.829	-1.657	0.121			
% CHC as FRU	-0.069	-0.788	0.445			
All 24 hrs HFS as % of total HF	0.166	1.262	0.229			
RKS as % of total HF	0.006	0.082	0.936			
JSY as % of total deliveries	-0.033	-1.353	0.199			
Non High-focus States (Dummy)	1.895	0.324	0.751			
IMR (Change) on Selected Variables						
Trained ASHA per 1000 pop	-	-	-	0.3185	0.2049	0.0693

Villages per ANM	-	-	-		
24 hrs PHC per lac pop	-1.720	-2.147	0.046		
% CHC as FRU	-	-	-		
All 24 hrs HFS as % of total HF's	-	-	-		
RKS as % of total HF's	0.053	1.139	0.270		
JSY as % of total deliveries	-0.036	-1.914	0.072		
Non High-focus States (Dummy)	-	-	-		

On right hand side, we have all important interventions suggested in NRHM. This model aims to explain variations among states in the level of IMR in the year 2007. The second model explains the change in IMR (Δ IMR) between the observed value of IMR *with NRHM* and expected value of IMR *without NRHM* again in terms of the same set of interventions suggested in NRHM.

$$2. \Delta \text{ IMR} = f(\text{ASHA/Pop.}, \text{Villages/ANM}, \text{24 hrs PHC/Pop.}, \text{\% CHC as FRU}, \text{\% 24 hrs HF's}, \text{RKS / HF}, \text{\% JSY Deliveries}, \text{Dummy for NHFS})$$

Table 19 presents the regression results. Refer to Appendix I for an explanatory note on the methodology and interpretation of the regression results. It is clear from the table that both the models fit the data well particularly when statistically insignificant variables are dropped and only most relevant selected variables are retained. The two major interventions by NRHM in terms of creating more 24 hrs PHCs and increasing Janani Suraksha Yojana (JSY) delivery proportion are statistically significantly related to the reduction in IMR. The rate of reduction, however, is far from satisfactory. Other relevant interventions in NRHM do not have statistically significant impact on IMR. In short, the mid-term review suggests that NRHM is not likely to achieve the targeted reduction in IMR, unless some drastic changes are considered in the program.

B. Full Immunization Rate among Children (IRC):

$$3. \text{ IRC} = f(\text{ASHA /Pop.}, \text{Villages / ANM}, \text{\% SC without ANM}, \text{VHSC /Pop.}, \text{Dummy for NHFS})$$

$$4. \Delta \text{ IRC} = f(\text{ASHA/Pop.}, \text{Villages / ANM}, \text{\% SC without ANM}, \text{VHSC/Pop.}, \text{Dummy for NHFS})$$

Table 20 presents the regression results. It can be seen that the data fit only the level model (i.e., Model 3). The variables in model 4 do not explain variations in the change in IRC on account of NRHM. Even in the 'level' case, the model shows perverse sign with high statistical significance for the number of ASHA per 1000 population. It seems NRHM hardly explains interstate variations in IRC.

C. Institutional Delivery Rate (IDR):

$$5. \text{ IDR} = f(\text{ASHA/Pop.}, \text{Villages/ANM}, \text{\% SC without ANM}, \text{24 hrs PHC/Pop.}, \text{\% CHC as FRU}, \text{\% 24 hrs. HF's}, \text{RKS/HFS}, \text{\% JSY Deliveries}, \text{VHSC/Pop.}, \text{Dummy for NHFS})$$

6. Δ IDR = f (ASHA/Pop., Villages/ANM, % SC without ANM, 24 hrs PHC/Pop., % CHC as FRU, % 24 hrs. HFs. RKS /HFS, % JSY Deliveries, VHSC/Pop., Dummy for NHFS)

Table 21 provides the regression results. Both the models fit the data well, particularly when statistically insignificant variables are removed and only the most relevant statistically significant variables are retained. However, the level of IDR regression (model 5 with selected variables) has some unexpected / inexplicable signs for coefficients with statistical significance though the overall explanatory power is as high as 81%! For instance number of trained ASHAs per 1000 population, % of JSY deliveries and VHSC per 1000 population have perverse signs, all being statistically significant! It may suggest that some of these interventions in the NRHM may be counterproductive for increasing the IDR in states. But when the impact of NRHM on the change in IDR is considered, number of trained ASHAs per 1000 population increases the impact, though % of JSY deliveries continue to exert negative and significant influence on the impact of NRHM on change in IDR in states. However, in terms of magnitude, the positive impact of ASHA far outweighs the perverse effect of JSY deliveries.

Table 20: Regression Results for IRC and Change in IRC						
Variables	Coefficient	t-statistic	P-value	R-square	Adjusted R-square	F-Significance
Immunization (Level) on All Variables						
Trained ASHA per 1000 pop	-11.746	-1.694	0.110	0.4932	0.3348	0.0376
Villages per ANM	0.428	0.425	0.676			
% SC not having ANM	-0.025	-0.076	0.940			
VHSC per 1000 pop	-0.152	-0.023	0.982			
Non High-focus States (Dummy)	9.236	0.776	0.449			
Immunization (Level) on Selected Variables						
Trained ASHA per 1000 pop	-15.636	-4.161	0.0005	0.4640	0.4372	0.0005
Villages per ANM	-	-	-			
% SC not having ANM	-	-	-			
VHSC per 1000 pop	-	-	-			
Non High-focus States (Dummy)	-	-	-			
Immunization (Change) on All Variables						
Trained ASHA per 1000 pop	-7.915	-0.612	0.549	0.1452	-0.1219	0.7408
Villages per ANM	1.244	0.662	0.517			
% SC not having ANM	0.811	1.332	0.201			
VHSC per 1000 pop	-3.584	-0.297	0.770			
Non High-focus States (Dummy)	-8.493	-0.383	0.707			

Table 21: Regression Results for IDR and Change in IDR						
Variables	Coefficient	t-statistic	P-value	R-square	Adjusted R-square	F-Significance
Institutional Deliveries (Level) on All Variables						
Trained ASHA per 1000 pop	-6.809	-1.117	0.290	0.8190	0.6381	0.0128
Villages per ANM	-1.295	-1.243	0.242			
% SC not having ANM	-1.033	-2.815	0.018			
24 hrs PHC per lac pop	1.232	0.650	0.530			
% CHC as FRU	0.276	1.681	0.124			
All 24 hrs as % of total HFs	0.009	0.037	0.971			
RKS as % of total HFs	0.111	0.889	0.395			
JSY as % of total deliveries	-0.200	-1.641	0.132			
VHSC per 1000 pop	-6.025	-1.024	0.330			
Non High-focus States (Dummy)	6.994	0.503	0.626			
Institutional Deliveries (Level) on Selected Variables						
Trained ASHA per 1000 pop	-7.554	-1.961	0.072	0.8084	0.7052	0.0008
Villages per ANM	-1.624	-2.049	0.061			
% SC not having ANM	-1.060	-3.534	0.004			
24 hrs PHC per lac pop	-	-	-			
% CHC as FRU	0.319	2.498	0.027			
All 24 hrs as % of total HFs	-	-	-			
RKS as % of total HFs	0.146	1.738	0.106			
JSY as % of total deliveries	-0.242	-2.990	0.010			
VHSC per 1000 pop	-8.010	-1.935	0.075			
Non High-focus States (Dummy)	-	-	-			
Institutional Deliveries (Change) on All Variables						
Trained ASHA per 1000 pop	8.726	1.401	0.192	0.4407	-0.1186	0.6432
Villages per ANM	-0.800	-0.752	0.469			
% SC not having ANM	0.243	0.649	0.531			
24 hrs PHC per lac pop	1.151	0.595	0.565			
% CHC as FRU	0.046	0.276	0.788			
All 24 hrs as % of total HFs	-0.276	-1.174	0.268			
RKS as % of total HFs	0.107	0.836	0.423			
JSY as % of total deliveries	-0.150	-1.203	0.257			
VHSC per 1000 pop	-1.198	-0.199	0.846			
Non High-focus States (Dummy)	-5.386	-0.379	0.712			
Institutional Deliveries (Change) on Selected Variables						
Trained ASHA per 1000 pop	8.556	2.691	0.015	0.3171	0.2413	0.0323
Villages per ANM						
% SC not having ANM	-	-	-			
24 hrs PHC per lac pop	-	-	-			
All 24 hrs as % of total HFs	-	-	-			

RKS as % of total HFs	-	-	-			
JSY as % of total deliveries	-0.160	-2.227	0.039			
VHSC per 1000 pop	-	-	-			
Non High-focus States (Dummy)	-	-	-			

Table 22: Regression Results for ANC and change in ANC						
ANC (Level) on All Variables						
Variables	Coefficient	t-statistic	P-value	R-square	Adjusted R-square	F-Significance
Trained ASHA per 1000 pop	-0.774	-0.100	0.922	0.5908	0.4629	0.0085
Villages per ANM	-0.561	-0.497	0.626			
% SC not having ANM	-0.488	-1.335	0.201			
VHSC per 1000 pop	-6.488	-0.896	0.384			
Non High-focus States (Dummy)	27.775	2.083	0.054			
ANC (Level) on Selected Variables						
Trained ASHA per 1000 pop	-	-	-	0.5837	0.5143	0.0010
Villages per ANM	-	-	-			
% SC not having ANM	-0.511	-1.481	0.156			
VHSC per 1000 pop	-6.550	-1.031	0.316			
Non High-focus States (Dummy)	30.345	3.967	0.001			
ANC (Change) on All Variables						
Trained ASHA per 1000 pop	6.254	1.150	0.267	0.1020	-0.1786	0.8661
Villages per ANM	-0.047	-0.060	0.953			
% SC not having ANM	-0.107	-0.416	0.683			
VHSC per 1000 pop	3.319	0.654	0.522			
Non High-focus States (Dummy)	6.955	0.745	0.467			

D. Rate of Women Having At Least 3 Ante-Natal Checks (ANC)

7. $ANC = f(\text{ASHA/Pop.}, \text{Villages/ANM}, \text{\% SC without ANM}, \text{VHSC/Pop.}, \text{Dummy for NHFS})$

8. $\Delta ANC = f(\text{ASHA/Pop.}, \text{Villages/ANM}, \text{\% SC without ANM}, \text{VHSC/Pop.}, \text{Dummy for NHFS})$

Table 22 provides the regression results. It can be seen that data do not fit model 8 for the change in ANC on account of NRHM. And even the level of ANC is largely explained by the dummy variable for the Non-High Focus States (NHFS) stating that the ANC rate is significantly higher in the NHFS than the HFS. NRHM does not seem to have any significant impact on the ANC rate as of now.

E. Rate of Unmet Needs of Health Infrastructure (UNHI):

9. $UNHI = f(ASHA/Pop., Villages/ANM, \% SC \text{ without ANM}, VHSC/Pop., \text{Dummy for NHFS})$

10. $\Delta UNHI = f(ASHA/Pop., Villages/ANM, \% SC \text{ without ANM}, VHSC/Pop., \text{Dummy for NHFS})$

Table 23 presents the regression results. It can be seen that both the models fit the data well particularly when most relevant statistically significant variables are retained and when the statistically insignificant variables are dropped. As expected, the levels of the UNHI are explained by the dummy for NHFS indicating that UNHI are significantly less among NHFS than HFS. However, most interesting are the results for the change in UNHI over time. Since DLHS-1 did not report data on Unmet Needs, this observed change in UNHI has not been adjusted for “without NRHM” scenario. Our results suggest that higher the number of ASHA per 1000 population, greater is the reduction in the Unmet Need for health infrastructure. Similarly higher is the percentage of sub-centers without ANMs, lower is the change in Unmet Need. VHSCs also make positive contribution in reducing the Unmet Needs for health infrastructure in the states. Thus, the major interventions in NRHM at the village level are all proving relevant for reducing the Unmet Need for Health Infrastructure. NRHM seems to be succeeding in this regard, but in terms of health outcomes and goals, its progress has not been satisfactory.

Table 23: Regression Results for UNHI and Change in UNHI						
Variables	Coefficient	t-statistic	P-value	R-square	Adjusted R-square	F-Significance
Unmet Needs(Level) on All Variables						
Trained ASHA per 1000 pop	1.658	0.486	0.634	0.3630	0.1640	0.1650
Villages per ANM	0.652	1.314	0.207			
% SC not having ANM	-0.032	-0.200	0.844			
VHSC per 1000 pop	1.459	0.458	0.653			
Non High-focus States (Dummy)	-3.220	-0.549	0.590			
Unmet Needs(Level) on Selected Variables						
Trained ASHA per 1000 pop	-	-	-	0.3485	0.2799	0.0171
Villages per ANM	0.690	1.531	0.142			
% SC not having ANM	-	-	-			
VHSC per 1000 pop	-	-	-			
Non High-focus States (Dummy)	-6.017	-1.931	0.068			
Unmet Needs(Change) on All Variables						
Trained ASHA per 1000 pop	-8.410	-5.914	0.000	0.7592	0.6840	0.0002
Villages per ANM	0.044	0.215	0.833			
% SC not having ANM	0.094	1.397	0.182			
VHSC per 1000 pop	-1.859	-1.402	0.180			
Non High-focus States (Dummy)	-6.551	-2.683	0.016			
Unmet Needs(Change) on Selected Variables						
Trained ASHA per 1000 pop	-8.366	-6.119	0.000	0.7586	0.7017	0.0000
Villages per ANM	-	-	-			

% SC not having ANM	0.095	1.469	0.160			
VHSC per 1000 pop	-1.818	-1.426	0.172			
Non High-focus States	-6.610	-2.805	0.012			

Chapter V Evaluation of NRHM – Sample Survey of CHCs and PHC (Including Multivariate Regression Results)

In the previous section, 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 NRHM is making 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. This is indicative of some qualitative aspects not adequately captured in such macro-level aggregative analysis. 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.

I. The Sample Survey Design

It was decided to concentrate on the High Focus States (HFS), and there too, on relatively bigger states in geographic and population terms. The choice, therefore, narrowed down to Madhya Pradesh (MP), Rajasthan and Uttar Pradesh (UP). Even within each of them, it was decided to select only representative districts to study the NRHM and its components since the design, structure, contents and major interventions under NRHM are fairly uniform because it is a national level intervention. 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 big in geography and population. Moreover, they have low rates of urbanization (generally not exceeding 20% or so). As per the 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 but 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), 3 to 4 CHCs located in different blocks, 8 to 9 PHCs from under the selected CHCs, 6 to 10 Sub-Centers again from under the selected PHCs, 17 to 23 ASHAs from villages covered under selected SCs, and 8 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 almost considered equivalent to two normal sized states. Table 19 provides the number of units selected for in-depth survey.

Units	Rajasthan		MP	UP	
	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

For each of the five categories given in **Table 24**, we had a separate questionnaire. For CHC and PHC a common questionnaire was used. All these five questionnaires are appended to this report for ready reference. These questionnaires were filled up personally by a select team of 3 investigators from IIM-A who were supported by a couple of local individuals in each district during the months of February and 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.

I. 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 25 and 26** report the survey findings regarding manpower in CHCs and PHCs. It can be seen from the **Table 25** that only 64% of the CHCs in these states had a General Practitioner, 43% had a Physician, 50% had a Surgeon, 36% had a Pediatrician, 29% had an AYUSH doctor and only 14% had an Anesthetist. Thus, availability of specialized doctors at CHC level, i.e. 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.

The table also shows inadequacy of the paramedical staff at the CHC level. Out of the total number of CHCs surveyed, 7% did not have Staff Nurse, 29% did not have ANM, 21% did not have a Ward Boy, 50% did not have a Male HA/LHV and 57% did not have a Female HA/LHV, 79% did not have any Health Educator, and 7% did not have a Radiographer. 14% 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 needs of people. Poor quality of health care 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 25 also reveals that even after 3 to 4 years of implementation of NRHM, 7% CHCs do not have doctor's residence and 14% do not have residence for Nurses. As a result, not all CHCs have round the clock service. 14% CHCs do not have availability of a doctor at night and 7% do not have nurses at night. Attendants at nights are available only in 57% CHCs.

Expectedly, the situation of manpower availability is even worse at the PHC level. **Table 26** reveals that out of the total PHCs surveyed, 13% did not have a doctor (GP) and only 42% had an AYUSH doctor. NRHM puts heavy emphasis on AYUSH, but on the ground, only 42% PHCs and 29% CHCs have AYUSH doctors. Only 42% PHCs had a Staff nurse and 23% PHC did not have any ANM. 32% PHCs did not have a ward boy, 71% had one male HA/LHV and 35% had no female HA/LHV. Only 10% of the PHCs had a Health Educator and 61% PHCs had a Laboratory Technician. What is concerning is that 23% PHCs did not have any cleaning staff. The residence facility to doctors and nurses for PHCs were available at 77% and 71% PHCs respectively. Round the clock availability of doctors, nurses and attendants at PHCs were respectively 68%, 58% and 52%. 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 3 years.

Details	Rajasthan		MP	UP		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Total HF visited	1	3	3	4	3	14	100
Number of HF 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
No. of HF with residence for Doctors	1	3	2	4	3	13	93
No. of HF with residence for Nurses	1	3	2	4	2	12	86
No. of HF with availability of doctors at night	1	3	2	3	3	12	86
Nurses	1	3	2	4	3	13	93
Attendants	0	1	1	4	2	8	57

Source: Our Sample Survey of CHCs

Details	Rajasthan		MP	UP		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
Surgeons	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
No. of HF with residence for Doctors	2	2	9	6	5	24	77
No. of HF with residence for Nurses	1	2	9	6	4	22	71
No. of HF with availability of doctors at night	1	2	7	7	4	21	68
Nurses	1	2	6	6	3	18	58
Attendants	1	2	7	5	1	16	52

Source: Our Sample Survey of PHCs

In terms of the physical infrastructure, our survey reveals a relatively better situation at CHC and the PHC level in the three selected states. **Tables 27 and 28** provide the information on CHCs and PHCs respectively. It can be seen from **Table 27** 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% CHCs were upgraded though only 64% reported the necessary equipments for surgeries after up gradation. 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% of CHCs and in 21% there was no facility for the relatives of the 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 cases⁶. While the general medicines were regularly supplied in all CHCs, the AYUSH medicine was regularly supplied only in 7% of the CHCs. Similarly, the consulting rooms for AYUSH doctors were available only in 21% 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 availability in all CHCs was satisfactory. However, telephone facility did not exist in 29% CHCs, all weather approach road in 21%, functional vehicles in 14%, linkage with blood-bank in 57% and medical store in 7% of CHC.

⁶ The usual practice accepted by the users is that the patients bring their own bed sheets!

Details	Rajasthan		MP	UP		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
No. of HF visited	1	3	3	4	3	14	100
No. of HF with Own Building	1	2	3	4	3	13	93
No. of HF with Building outside village	0	0	0	2	1	3	21
No. of HF that are upgraded	0	2	3	0	0	5	36
No. of HF with necessary equipments 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	-	-
No. of HF 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	-	-	-
No. of HF with regular supply of medicines (Gen)	1	3	3	4	3	14	100
No. of HF with regular supply of medicines (AYUSH)	1	0	0	0	0	1	7
No. of HF with Major Repair/Maintenance/Renovations after NRHM	1	3	3	4	3	14	100
No. of HF 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
Sitting 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 Hr 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

Lack of such 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 28 on physical infrastructure in PHC reveals worse conditions than those existing at CHC. While every PHC visited had its own building, 36% were outside the village. Only 19% of the selected PHCs in these three states are upgraded under NRHM. None of the PHCs had necessary equipments for surgeries and 16% did not have necessary equipments for deliveries. 26% PHCs did not have regular supply of medicines. (The problem was more severe in Azamgarh in UP). Only 29% PHCs had regular supply of AYUSH medicine and only 39% PHCs had consulting rooms for AYUSH doctors. 13% PHCs did not have fully equipped labor room. 13% PHCs did not have beds and 16% did not have sitting facility for relatives of patients. 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, the essential infrastructure was missing in some PHCs. Electricity was not there in 16% PHCs, water supply in 10%, drinking water in 10%, functional generator in 52%, toilet in 7%, round the clock delivery facility in 32%, telephone in 48%, all weather approach road in 13%, functional vehicles in 81%, and linkage with blood bank in 81% PHCs did not exist. The Indian Public Health Standards are obviously not met.

Table 28: Survey Findings Regarding Physical Infrastructure in PHCs of Rajasthan, MP and UP							
Details	Rajasthan		MP	UP		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
No. of HF visited	4	4	9	8	6	31	100
No. of HF with Own Building	4	4	9	8	6	31	100
No. of HF with Building outside village	0	1	4	3	3	11	35
No. of HF that are upgraded	3	1	2	0	0	6	19
No. of HF with necessary equipments for Deliveries	4	4	9	7	2	26	84
Surgeries	-	-	-	-	0	0	0
Average OPD hours	6	6	6	6	6	-	
No. of HF 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	-	-	-
No. of HF with regular supply of medicines (Gen)	4	4	9	1	5	23	74
No. of HF with regular supply of medicines (AYUSH)	1	2	2	2	2	9	29
No. of HF with Major Repair/Maintenance/Renovations after NRHM	3	4	9	1	2	19	61
No. of HF 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
Sitting 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 Hr 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

The poor quality of health care suggested by the lack of such basic amenities and facilities has not been addressed by NRHM so far. Only 61% 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 29** provides the information for CHCs in the selected districts. Even after NRHM, 29% CHCs did not have any improvement in infrastructure and 14% did not have improvement in the manpower. Almost 43% 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% CHCs did not feel that RKS played any effective role in addressing the complaints of patients. RKS in 71% cases was able to improve infrastructure and in 57% improve health related equipments. Only in 14% cases lodging facilities and in 71% cases improvement the support services. About 86% RKS generate funds and 79% feel that the RKS funds are adequate. About utilization of untied funds, 79% CHCs are using them for buying equipments and 57% for buying medicines; only 29% were using them to pay for cleaning, security services, etc. and only 43% 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 29: Details Regarding NRHM Funds and its Management in CHCs in Rajasthan, MP and UP

Details	Rajasthan		MP	UP		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Total HF visited	1	3	3	4	3	14	100
After NRHM the No. of HF that have reported:							
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
No. of HF that conduct deliveries							
Normal	1	3	3	4	3	14	100
Cesarean	0	2	0	1	1	4	29
Avg no. of deliveries in HF (Normal)	752	1207	1695	1513	817	-	-
Cesarean	0	70	0	1	1	-	-
Avg no. of OPD (per day)	70	140	173	143	183	-	-
No. of HF receiving NRHM funds	1	3	3	4	3	14	100
No. of HF reporting delay in receiving funds	0	0	1	0	0	1	7
No. of HF with RKS	1	3	3	4	3	14	100
No. of HF with a staff member being RKS member	1	3	3	4	3	14	100
Avg no. of years RKS is functioning	8	8	13	1	1	-	-
No. of HF 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 equipments	1	3	1	3	0	8	57
Improvement of lodging/boardng facilities	0	0	0	0	2	2	14
Improvement in support services	1	3	2	4		10	71
Avg frequency of RKS meetings (per year)	4	7	3	7	0	-	-
No. of HF where RKS generates funds	1	3	2	4	2	12	86
Avg Amt (Rs.) per year	20000	250333	45500	69549	90000	-	-
No. of HF where RKS funds are audited	1	3	3	4	3	14	100
No. of HF feel that the funds are adequate	1	3	1	4	2	11	79
No. of HF that utilize the untied funds for Maintenance	1	3	2	3	2	11	79
Private doctors services	0	0	0	0	0	0	0
Repairs/Renovation	1	3	2	3	2	11	79

Buying equipments	1	3	2	1	0	7	50
Buying medicines	1	3	1	1	2	8	57
Paying for services like cleaning, security, etc.	1	2	1	0		4	29
Hiring contractual staff	2	3	0	0	1	6	43
No. of Yrs HF have started receiving untied funds	2	2	3	2	2	-	-
% utilization 2005-06	-	100	-	-	-	-	-
2006-07	100	93	100	-	-	-	-
2007-08	100	93	100	100	100	-	-
2008-09	-	-	-	100	-	-	-
<i>Source: Our Sample Survey of CHCs</i>							

Table 30: Details Regarding NRHM Funds and its Management in PHCs in Rajasthan, MP and UP

Details	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur	Total	%
	Rajasthan		MP	UP			
Total HF visited	4	4	9	8	6	31	100
After NRHM the No. of HF that have reported:							
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
No. of HF that conduct deliveries							
Normal	4	4	8	3	3	22	71
Cesarean	0	0	0	0	0	0	0
Avg no. of deliveries in HF (Normal)	48	35	248	955	150	-	-
Cesarean	-	-	-	-	-	-	-
Avg no. of OPD (per day)	24	19	39	62	31	-	-
No. of HF receiving NRHM funds	4	4	9	6	2	25	81
No. of HF reporting delay in receiving funds	1	1	3	1	1	7	23
No. of HF with RKS	4	4	9	6	1	24	77
No. of HF with a staff member being RKS member	4	4	9	6	1	24	77
Avg no. of years RKS is functioning	2	2	7	1	3	-	-
No. of HF 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 equipments	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
Avg frequency of RKS meetings (per year)	0	3	6	0	0	-	-
No. of HF where RKS generates funds	4	4	9	6	1	24	77
Avg Amt (Rs.) per year	13000	30500	13222	24625	26400	-	-
No. of HF where RKS funds are audited	4	4	9	6	1	24	77
No. of HF feel that the funds are adequate	2	3	7	3	0	15	48
No. of HF that utilize the untied funds for Maintenance	1	3	5	5	1	15	48
Private doctors services	0	0	0	0	0	0	0
Repairs/Renovation	1	4	6	3	1	15	48
Buying equipments	1	3	7	3	0	14	45

Buying medicines	2	4	2	2	1	11	35
Paying for services like cleaning, security, etc.	1	3	6	2	1	13	42
Hiring contractual staff	0	2	2	1	0	5	16
No. of yrs HF have started receiving untied funds	2	3	2	2	2	-	-
% utilization 2005-06	-	65	-	-	-	-	-
2006-07	90	93	100	-	-	-	-
2007-08	80	83	99	100	100	-	-
2008-09	-	-	-	100	-	-	-
<i>Source: Our Sample Survey of PHCs</i>							

Table 30 provides information on management of NRHM funds at PHC level. Some PHCs in UP did not receive the NRHM funds; and about 23% PHCs reported delay in receiving the funds. Only 77% 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% PHCs felt that RKS played effective role in addressing patients' complaints, 55% recognized RKS role in improving infrastructure and equipments, only 42% felt RKS helped in improving support services. Almost all RKS were able to generate funds and their accounts were audited. However, only 60% 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% of PHCs), buying equipments (45% PHCs), buying medicines (35% PHCs), paying for cleaning and security services (42% PHCs) and for hiring contractual staff (16% PHCs). None of the PHCs used the untied funds for hiring private doctor's services. The NRHM funds are utilized but the needs are much more. There is also a question of mind-set of people in using this fund to genuinely 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.

Before we discuss the sub-centers, we examine the determinants of the health outputs of CHC/PHC considered most critical by NRHM, viz., 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, Av. 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, Av. 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 characteristics of HFs, and general environmental variables. **Table 31 and 32** 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 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.

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.

Table 31: Regression Results on Determinants of Deliveries in HF

Variables		Coefficient	t-statistic	P-value	R-square	Adjusted R-square	F-significance
Deliveries on All Variables							
CHC/PHC	Dummy	93.3	0.744	0.4621	0.7889	0.7121	0.0000
Frequency of Fund Transfer	No.	39.5	0.839	0.4077			
Delay in Receiving NRHM Funds	Dummy	-126.6	-0.622	0.5380			
Specialists in HF	No.	-284.0	-2.448	0.0198			
Gen Doctors in HF	No.	147.2	3.242	0.0027			
Paramedical Staff in HF	No.	55.5	2.520	0.0168			
Avg Distance of HF from village	Kms	-167.8	-1.730	0.0930			
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	No.	69.3	2.914	0.0064			
UP	State Dummy	712.9	3.291	0.0024			
MP	State Dummy	-0.018	0.000	0.9999			
Deliveries on Selected Variables							
Variables							
CHC/PHC	Dummy	-	-	-	0.7783	0.7229	0.0000
Frequency of Fund Transfer	No.	44.7	1.064	0.2944			
Delay in Receiving NRHM Funds	Dummy	-	-	-			
Specialists in HF	No.	-269.9	-2.384	0.0225			
Gen Doctors in HF	No.	153.8	3.635	0.0009			
Paramedical Staff in HF	No.	62.9	3.049	0.0043			
Avg Distance of HF from village	Kms	-169.4	-1.923	0.0624			
Night Availability of doctors	Dummy	-	-	-			
Fund Generated by RKS	Amount Rs.	0.003	2.602	0.0134			
Years of RKS	No.	74.0	3.253	0.0025			
UP	State Dummy	682.5	3.949	0.0004			
MP	State Dummy	-161.2	-0.749	0.4589			

Our Sample Survey of PHCs and CHCs

Table 32: 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	No.	-0.95	-0.302	0.7643			
Delay in Receiving NRHM Funds	Dummy	-22.3	-1.641	0.1103			
Specialists in HF	No.	0.85	0.109	0.9138			
Gen Doctors in HF	No.	6.31	2.081	0.0453			
Paramedical Staff in HF	No.	7.91	5.373	0.0000			
Avg Distance of HF from village	Kms	-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	No.	3.34	2.101	0.0434			
UP	State Dummy	51.4	3.550	0.0012			
MP	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	No.	-	-	-			
Gen Doctors in HF	No.	5.80	2.235	0.0316			
Paramedical Staff in HF	No.	8.52	11.258	0.0000			
Avg Distance of HF from village	Kms	-6.14	-1.065	0.2937			
Night Availability of doctors	Dummy	-	-	-			
Fund Generated by RKS	Amount Rs.	-	-	-			
Years of RKS	No.	3.47	2.381	0.0226			
UP	State Dummy	50.6	3.817	0.0005			
MP	State Dummy	48.6	2.975	0.0051			

Our Sample Survey of PHCs and CHCs

Chapter VI Evaluation of NRHM - Sample Survey of ANMs, ASHAs and People's Participation

Table 33 provides information on the sub-centers (SCs) and ANMs based on our sample survey. It can be seen that on an average there is one ANM per SC and about 76% of the ANMs are staying in the same village where the SC is located. While in Rajasthan, the number of villages covered per ANM is in the range of 2 to 4, they are more than double in the case of MP and UP. In Sitapur (UP), there are on average 13 villages covered by ANM. Quality of healthcare at SC therefore obviously suffers. Number of ASHAs per ANM also varies substantially in these states. Number of villages with VHSC dealing with ANM also varies substantially from 2 in Jalore to 8 in Sagar. The average number of rooms in the SCs also varies considerably from only one in Chittorgarh to 6 in Azamgarh. About 74% of SCs have their own buildings. In terms of the physical infrastructure, about 26% SCs did not have delivery tables, 33% SCs did not have medical equipments, 40% SCs did not have electricity connection, 33% SCs did not have water supply for 24 hrs per day, and only 5% SCs had a two wheeler. NRHM funds have not succeeded so far to remove this deficiency of physical infrastructure prevailing at SCs.

Only 21% of ANMs are involved in the selection of ASHA with whom they have to work closely. However, 74% ANMs felt that ASHAs had reduced their work load and 90% ANMs thought that ASHAs contributed to NRHM by mobilizing the communities to avail public health care. Almost 93% ANMs received the NRHM un-tied grant of Rs.10,000/- per year.

Table 33: Survey Findings Regarding ANM/Sub-centers of Rajasthan, MP and UP							
Details	Rajasthan		MP	UP		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Total HF visited	4	7	10	11	10	42	100
No. of ANM staying in Same Village	4	6	7	9	6	32	76
Avg no. of villages covered by ANM	2	4	8	7	13	-	-
Avg no. of ASHAs under by ANM	2	3	6	6	6	-	-
Avg no. of villages with VHC dealing with ANM	2	4	8	5	7	-	-
Avg no. of ANMs at the SC	1	1	1	1	1	-	-
No. of Sub-centers with own building	3	6	7	6	9	31	74
Avg No. of rooms in sub-centers	2	1	3	6	2	-	-
No. of Sub-centers with Delivery Table	3	5	6	8	9	31	74
Medical equipments	4	5	7	11	1	28	67
Electricity Connection	2	4	5	10	4	25	60
Water supply for 24 hours	2	5	7	11	3	28	67
Moped / two wheeler	0	1	0	1	0	2	5
No. of ANMs involved in selection of ASHA	1	2	1	2	3	9	21
No. of ANMs that feel that ASHA has reduced their load	4	6	5	11	5	31	74
No. of ANMs that feel ASHA is contributing by Mobilizing community to avail healthcare services	4	6	9	10	9	38	90
Identifying and accompanying complicated delivery cases	2	6	8	11	9	36	86
Providing health information to the community	4	6	6	11	7	34	81
Providing new born baby care	2	5	5	11	6	29	69
No. of ANMs that have received NRHM grant	4	6	9	11	9	39	93
Avg Amt received under NRHM (Rs. per year)	10000	10000	10000	10000	10000	-	-
No. of ANMs with with bank account	4	7	7	10	9	37	88
No. of ANM having joint account	4	7	9	11	9	40	95
No. of sub-centers where untied funds are used for In repairing and	0	6	8	6	5	25	60

renovation							
In purchasing equipments	4	6	6	5	0	21	50
In buying medicines	1	3	2	4	3	13	31
For electricity supply	2	2	4	1	1	10	24
For running water supply	1	3	1	2	1	8	19
Details	Rajasthan		MP	UP		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
% of fund utilization during 2005-06	-	65	58	-	-		
2006-07	50	62	91	78	-	-	-
2007-08	50	95	81	100	100	-	-
No. of ANMs that encountering problems in spending the funds	3	7	-	5	-	15	36
No. of ANMs that feel the funds are adequate	4	7	6	8	8	33	79
Adequate amount as stated by ANMs (Rs.)	-	-	35000	15000	-	-	-
ORS	4	7	9	11	8	39	93
Chloroquine	4	7	9	10	7	37	88
Antibiotics	4	6	8	10	7	35	83
Pain killers	3	7	8	8	7	33	79
TB drugs kit	4	7	7	5	3	26	62
Disinfectants	3	1	9	6	6	25	60
Disposable delivery kits (DDK)	4	3	1	4	0	12	29
Oral contraceptive pills	4	7	9	10	8	38	90
Condoms	4	7	9	11	7	38	90
No. of ANMs who get the refills							
Weekly	0	0	1	1	0	2	5
Fortnightly	2	0	1	0	0	3	7
Monthly	2	2	5	1	1	11	26
Rarely	0	5	0	9	6	20	48
No. of ANMs who conduct deliveries	3	3	6	9	5	26	62
No. of ANMs who conduct deliveries At Home	3	3	6	5	0	17	40
At the Sub Center	0	0	0	4	5	9	21
Avg no. of deliveries conducted by ANM	4	1	2	3	18	-	-
No. of ANMs who report the deliveries conducted at home	As	4	5	4	6	3	22
							52

home deliveries							
As deliveries in Sub Center	0	0	1	2	5	8	19
No. of ANMs who send the complicated delivery cases to Dai	0	0	0	0	0	0	0
PHC	2	0	2	4	0	8	19
CHC	1	7	6	4	9	27	64
District Hospital	1	0	2	3	1	7	17
Private	0	0	0	0	0	0	0
Avg no. of Dais in the area covered by ANM	4	6	6	3	3	-	-
Are they (TBA's/Dais) given any incentives to conduct deliveries	0	0	2	1	6	9	21

Source: Our Sample Survey of ANMs

95% ANMs had joint bank account with Sarpanch of the Panchayat. 60% ANMs used the fund for repairs and renovations; 50% ANMs for purchasing equipments, 31% for buying medicines; 24% for electricity supply and 19% for running water supply. In short, the funds were used for overcoming the infrastructural shortcomings wherever they were used. However, utilization of the NRHM fund by the ANM also ran into problems reported by 36% ANMs. In Rajasthan and in MP utilization was considerably less. This happened largely because of the joint account with Sarpanch, where the NRHM funds were made available. The Sarpanch used to demand his commission for signing the check that would be in the range of 20% to 50% of the amount. As a result, some ANMs would not spend the money and others may not be able to properly spend the money. However, 79% ANMs felt that the funds given under NRHM were adequate, though the physical infrastructure continued to be in the bad shape as found above.

The disposable delivery kits (DDK) are available only to 29% ANMs, which is a serious problem in view of NRHM's emphasis on safe deliveries. The ANMs get their drug kits refilled as reported to us not very regularly. Only 5% get it weekly; 7% fortnightly; 26% monthly; and 48% rarely. The refill of drug kits still remains a problem and AYUSH medicines are largely missing.

About 62% of the ANMs conducted deliveries, out of which 41% did it at home and only 21% did it at the SC. However, 19% ANMs reported the deliveries conducted at home as 'institutional deliveries'. No complicated cases of deliveries were referred to either *dais* or private doctor. Most of them (64%) were referred to CHC, 20% to PHC and 16% to district hospital. The number of dais available in an ANM's area on an average varied from 3 to 6. Only 21% ANM reported incentives given to trained birth attendant (TBA) or Dai for conducting the deliveries. At the SC level, NRHM has started making some difference particularly by providing some discretionary fund for improving the infrastructure and getting some equipment, but there is still a huge gap in these matters before quality of the healthcare improves significantly. Problems encountered in utilization of this fund by ANMs need to be particularly addressed quickly to achieve better progress.

II. Survey Results for ASHA

A trained female ASHA is the key element in NRHM strategy and action plan. She is expected to create awareness and mobilize the community to utilize public healthcare when needed. It is she who has been given a very important role at the ground level to act as an activist providing the link between the public health facility and the community users. **Table 34** provides information on different aspects of ASHA's background, selection, training, and interface with community and rewards. It is seen from the table that only 72% ASHAs were above 24 years of age as required, 28% ASHAs were younger. Similarly, 4% ASHAs were unmarried and 8% ASHAs did not live in the same village where they worked – both of which again are going against the criteria laid down for the ASHAs.

Table 34: Survey Findings Regarding ASHAs of Rajasthan, MP and UP							
Details	Rajasthan		MP	UP		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Total ASHA visited	5	12	19	19	23	78	100
No. of ASHA with Age > 24	1	6	14	13	22	56	72
Caste							
SC/ST/OBC	4	10	12	13	16	55	71
General	0	2	7	6	7	22	28
Avg level of education	7	9	9	9	8	-	-
No. of ASHA Unmarried	0	0	2	0	1	3	4
Married	5	12	16	19	20	72	92
Widowed	0	0	1	0	2	3	4
No. of ASHA who work for the same Village/Village Panchayat where she stays	5	9	19	18	21	72	92
No. of ASHA that have reported:						-	-
FGDs conducted before selection	3	6	13	8	21	51	65
Shorlisting candidates for selection	1	4	9	16	21	51	65
Gram Sabha' meeting were held during the selection process	3	6	14	17	21	61	78
Have worked as community based workers earlier	4	6	1	6	8	25	32
No. of ASHA that have: Received any training after joining	5	12	17	19	23	76	97
Avg no. of days of training	10	16	12	19	8	-	-
Received any training in last one year	2	6	10	14	23	55	71
As per ASHA the training was useful in: Developing and Improving knowledge and Skills	5	11	16	19	23	74	95
Solving doubts and troubles	0	11	16	18	23	68	87
Refilling of Supplies	0	4	13	16	22	55	71
Payments of Performance Incentives	0	4	13	9	21	47	60
No. of ASHA that received any compensation for the attending training	5	11	14	18	14	62	79
Average amt received (Rs.)	920	1230	1186	1692	654	-	-
No. of ASHAs that receive regular 'On The Job'	5	6	16	15	18	60	77

training								
No. of ASHAs that have received Drug Kit	5	11	16	14	23	69	88	
ORS	5	12	16	13	23	69	88	
Iron Tablets	5	12	16	17	22	72	92	
Oral Pills	5	12	16	13	17	63	81	
Condoms	5	12	16	17	18	68	87	
Disposal Delivery Kit (DDK)	1	9	2	10	21	43	55	
Medicines	4	11	17	13	16	61	78	
Details	Rajasthan		MP	UP		Total	%	
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur			
Creating awareness to the community on health, hygiene and nutrition	3	12	16	19	21	71	91	
Mobilize the community in their access to the health services such as: ANC (Ante Natal Care)	5	12	17	18	22	74	95	
PNC (Post Natal Check up)	4	12	17	18	21	72	92	
Immunization	5	12	17	18	23	75	96	
Sanitation	3	6	15	19	21	64	82	
Counseling Women on: Birth preparedness and safe delivery	5	12	17	18	23	75	96	
New born care	5	12	17	19	23	76	97	
Breast feeding and complimentary feeding	5	12	17	18	23	75	96	
Immunization of Infants	5	12	18	19	23	77	99	
Use of Contraceptives / Family planning measures	5	12	17	18	22	74	95	
Escort/Accompany a pregnant women or sick children to the nearest health facility	0	12	18	19	22	71	91	
Informing the Sub-centre/PHC/CHC about: Births and Deaths in the Village	5	12	18	19	21	75	96	
Outbreak of health problem/disease	4	7	9	19	19	58	74	
Promoting Construction of household toilets	0	4	16	18	20	58	74	
No. of ASHA who escort the pregnant women to Sub-centre	-	1	0	1	3	5	6	
PH/CHC	-	11	19	17	20	67	86	
Private HF	-	0	0	1	0	1	1	
Avg Distance of HF (kms)	-	12	14	7	9	-	-	
Avg no. of pregnant women escorted by ASHA	0	9	14	15	12	-	-	

in last one year							
Avg amount received to accompany pregnant women to HF (Rs.)	-	492	341	600	280	-	-
No. of ASHA that spend over and above the amount received	-	2	0	8	18	28	36
Avg amount spent (Rs.)	-	200	-	225	276	-	-
No. ASHA that receive performance based incentives	5	12	17	13	13	60	77
Avg amount per month (Rs.)	640	788	618	640	317	-	-
No. of ASHA happy with the incentives	1	1	16	4	4	26	33
No. of ASHA demanding regular salary	1	11	18	17	22	69	88
Details	Rajasthan		MP	UP		Total	%
	Jalore	Chittorgarh	Sagar	Azamgarh	Sitapur		
Average amt (Rs.)	2000	1390	1850	3471	3818	-	-
No. of ASHA with bank account	4	12	7	19	19	61	78
No. of ASHA that receive proper support from the ANM or the anganwadi worker (AWW) for:							
Refilling Drug Kits	5	12	13	15	21	66	85
On the Job Training	5	11	18	17	20	71	91
Guidance Regarding: Use of various medicine	5	11	15	17	21	69	88
Doses and side effects of Contraceptive oral pills	5	12	17	15	23	72	92
Danger signs of pregnancy and labor pain	5	12	15	15	22	69	88
Receiving performance based incentives	0	2	16	7	20	45	58
No. of ANM that support ANM and AWW for : Preparation of list of eligible couples	1	5	16	15	18	55	71
Children below 1 year of age	4	9	16	18	20	67	86
Bringing pregnant women, feeding mothers and infants to AWC/Sub-centre for nutrition and health checkup etc.	5	12	18	19	23	77	99
No. of ASHA recognized by the people of your village	5	12	19	18	23	77	99
No. of ASHA who get support from people of her village	5	11	18	18	23	75	96

No. of ASHA actively involved with the local Panchayati Raj Institution (PRI)/ Village Health Committee (VHC)	0	6	17	9	22	54	69
No. of ASHA that receive proper support from the PRI and VHC for: Creating awareness for health and hygiene among the villagers	1	6	16	13	22	58	74
Conduction of Cleanliness and Sanitation programs	1	5	15	14	21	56	72
Construction of Household Toilets	0	3	12	15	18	48	62
Monetary Requirements	0	1	2	11	15	29	37
No. of ASHA who would like to work as ANM	4	11	18	19	22	74	95
No. of ASHAs that feel and increase in institutional deliveries	2	12	17	18	16	65	83
<i>Source: Our Sample Survey of ASHA</i>							

About the selection procedure, 65% ASHA said, there were Focused Group Discussions (FGDs) conducted before selection and candidates were shortlisted. 78% said, Gram Sabha meeting was held during the selection process. These processes are laid down, but are not followed always as it turns out. 32% ASHA worked as community based workers earlier. Almost all of them received training after joining. Almost 71% ASHAs received some formal training for 12 to 19 days during the first year of their work. Almost all ASHAs felt that the training was very useful in solving doubts and problems. However, only 70% felt that the training was useful in refilling supplies and in receiving payments for performance incentives. About 80% ASHAs received some compensation ranging from Rs.654 to Rs.1692 for attending the training. 77% ASHAs keep receiving on the job training. About 11% ASHAs did not receive drug kits. The problem seems to be confined to parts of MP and UP. The disposable delivery kit (DDK) was also not received by 45% ASHAs. Medicines for fever, and pain killers, etc were not the part of the drug kits for 22% ASHAs.

More than 90% ASHAs interviewed informed us about their active involvement in creating awareness in the community on health, hygiene and nutrition; mobilizing community to utilize healthcare services such as ANC, PNC, Immunization; sanitation, counseling women on birth preparedness and safe delivery; new born care, breast feeding and complementary feeding, infant immunization, use of contraceptives and family planning measures, escorting pregnant women and sick children to the nearest HF⁷ and informing SC/PHC/CHC about births and deaths in the village. However, more than 25% ASHAs did not report outbreak of health problem or disease to SC/PHC/CHC; and did not participate in promoting construction of household toilets. The preferred destination of ASHA escorting a pregnant woman was a PHC/CHC (86%). Very few took the patient to a private HF. There is a marked variation in the reported average amount received for accompanying a pregnant woman to a HF by ASHA. It varied from Rs.280 (Sitapur) to Rs.600 (Azamgarh). About 76% ASHAs complained about the money being inadequate since they had to spend extra money out of their pocket. About 77% ASHAs received performance based incentives ranging from Rs.317 (Sitapur) to Rs.788 (Chittorgarh).

About 85% to 92% ASHAs received proper support from the ANM or AWW (Anganwadi Worker) for refilling the drug kits, on the job training, guidance regarding use of various medicines, doses and side effects of contraceptive pills, and danger signs of pregnancy and labor pain. 77% ASHAs also supported ANM and AWW for preparation of list of eligible couples for family planning and children below one year of age. Almost all ASHAs supported ANMs and AWW by bringing pregnant women feeding mothers and infants to SCs for nutrition and health checkup.

Only 69% ASHAs were actively involved with PRIs and VHSCs; and 74% stated receiving proper support from PRIs and VHSCs for creating awareness for health and hygiene among villagers; 71% for sanitation and cleanliness programs; 62% for construction of household toilets; and 37% for personal monetary requirements. Almost 83% ASHA felt that institutional deliveries have increased after NRHM that shows positive mindset and optimistic attitude of ASHAs.

Before we conclude the discussion on ASHA based on our survey results, it is worth examining the determinants of the two most critical expected outputs of ASHA, escorting

⁷ During our field visits, we found that some ASHAs did not accompany the pregnant woman for delivery because they were not informed by the family of patient. This was because if ASHA did not accompany, the family would receive transport cost reimbursement.

pregnant women for delivery (EPWD); and constructing household toilets (HHT). The following models are tested:

1. EPWD = f (Av. Distance of HF, Money Received for escorting, Amount of Performance Incentive, ASHA's involvement in PRI-VHSC, ASHA's opinion on Institutional Delivery, ASHA worked as Community Worker, Dummies for UP and MP)
2. HHT = f (Amount of Performance Incentive, ASHA being Happy with incentive, ASHA receiving support from PRI, Dummies for UP and MP).

It can be seen from the models (1) and (2) that we have included explanatory variables from the behavioral or personal qualities and background of ASHA, her interface with PRI, environmental variables, and NRHM policy variables. The results of these models are reported respectively in **Tables 35 and 36**.

It can be seen that both the models have fitted the sample survey data well with r-square around 0.5 or more. When we drop the statistically insignificant variables, the models on selected variables better fit the data as indicated by improved r-bar-square and F-significance.

The results on number of Deliveries Escorted by ASHA (EPWD) is primarily determined by the amount of performance incentive, both the state dummies for UP and MP, and ASHA's involvement in PRI/VHSC. All these coefficients are significant at 12% level. What is interesting is that amount received by ASHA for escorting the pregnant woman for delivery is not statistically significant. It is the performance incentive that works much better because this escort service would create goodwill for the ASHA in the community and her overall performance would hence improve. Compared to Rajasthan (base case), UP and MP had better environmental effect with MP exercising greater effect. The NRHM's emphasis on ASHA's selection through PRI seems to be working since her involvement with PRI/VHSC plays a positive role in determining her output.

Table 35: Regression Results for Deliveries escorted by ASHA (EPWD)							
Variables		Coefficient	t- statistic	P- value	R- square	Adjusted R- square	F- significance
Deliveries Escorted on All Variables							
Avg Distance of HF	No.	-0.22	-1.471	0.1458	0.6312	0.5885	0.0000
Amt Received for Escorting Pregnant women for delivery	Amount(Rs.)	0.002	0.487	0.6275			
Amount of performance incentive	Amount(Rs.)	0.019	7.875	0.0000			
ASHA's involvement in PRI/VHC	Dummy	3.28	1.630	0.1076			
ASHA's opinion on increase in institutional deliveries	Dummy	2.96	1.168	0.2468			
ASHA worked as a Community Worker	Dummy	-2.65	-1.363	0.1773			
UP	State Dummy	7.92	2.685	0.0091			
MP	State Dummy	9.53	3.932	0.0002			
Deliveries Escorted on Selected Variables							
Variables		Coefficient	t- statistic	P- value	R- square	Adjusted R- square	F- significance
Avg Distance of HF	No.	-0.210	-1.425	0.1586	0.6300	0.5930	0.0000
Amt Received for Escorting Pregnant women for delivery	Amount(Rs.)	-	-	-			
Amount of performance incentive	Amount(Rs.)	0.019	8.055	0.0000			
ASHA's involvement in PRI/VHC	Dummy	3.169	1.594	0.1155			
ASHA's opinion on increase in institutional deliveries	Dummy	3.276	1.345	0.1829			
ASHA worked as a Community Worker	Dummy	-2.826	-1.490	0.1407			
UP	State Dummy	7.720	2.657	0.0098			
MP	State Dummy	9.715	4.085	0.0001			
<i>Source: Our Sample Survey of ASHA</i>							

Table 36: Regression Results for Promotion of Household Toilets (HHT) by ASHA							
Variables		Coefficient	t-statistic	P-value	R-sqaure	Adjusted R-square	F-significance
Promotion of Construction of HH toilets on All Variables							
Amount of performance incentive	Amount(Rs.)	0.0002	1.614	0.1108	0.4952	0.4602	0.0000
ASHA happy incentive	Dummy	-0.0213	-0.216	0.8293			
ASHA receives PRI Support for cleaning and sanitation	Dummy	0.3413	3.732	0.0004			
MP	State Dummy	0.4951	3.651	0.0005			
UP	State Dummy	0.5712	5.483	0.0000			
Promotion of Construction of HH toilets on Selected Variables							
Variables							
Amount of performance incentive	Amount(Rs.)	0.0002	1.621	0.1093	0.4949	0.4672	0.0000
ASHA happy incentive	Dummy	-	-	-			
ASHA receives PRI Support for cleaning and sanitation	Dummy	0.3412	3.756	0.0003			
MP	State Dummy	0.4796	4.187	0.0001			
UP	State Dummy	0.5696	5.518	0.0000			
<i>Source: Our Sample Survey of ASHA</i>							

Table 36 shows that the main determinants of promotion of construction of household toilets by ASHA is again the amount of performance incentive received by ASHA, the support she receives from PRI, and the state dummies for UP and MP. The question of ASHA's perception or opinions regarding adequacy of incentive amount is not relevant. Thus, both the models have shown that the NRHM's emphasis on ASHA's interface with PRI/VHSC and on the performance incentives given to ASHA is effective in determining her performance on ground. In this context, it is interesting to see that the performance incentive actually received by ASHA varies considerably from Rs.50 p.m. in Sagar (MP) to Rs.2000 p.m. in Azamgarh (UP), though the average amount shows much less variation from Rs.317 in Sitapur (UP) to Rs.788 in Chittorgarh (Rajasthan). Thus, it is an effective policy tool in NRHM.

III. Public Participation: Survey Findings

Public Participation under NRHM is formalized by specific institutional arrangements at various levels (see, ch.2). Involvement of PRIs in the program is an important element ensuring people's participation. Similarly, there are specific committees like VHSC at Village and sub-centre levels and RKS at the PHC and CHC levels. The Additional PHCs in UP, however, did not have RKS, only Block PHCs had it. In Rajasthan, RKS is known as Rajasthan Medical Relief Society (RMRS) and it was in operation at the CHC level even before the NRHM implementation. Like RKS, the members of RMRS in Rajasthan included Block Medical Officer (BMO), the HF doctors and some non-official members from outside the government system. However, in UP, all members of RKS by and large are from the government system and their membership is ex-officio.

In RMRS in Rajasthan at the PHC/CHC level, the BMO is the Chairman of the Committee and a doctor of the PHC/CHC is the member-secretary; whereas at the sub-center level, VHC has the Sarpanch as the Chairman and ANM as the member-secretary. Thus, at one level, a politically elected person is a chairman with the government official as secretary and at the other level government officials occupies both the positions. We found that it had some implications on the efficiency and working of the committees. At PHC/CHC level in Rajasthan, the PHC doctors were happy with the chairman because he would understand the needs of the PHCs and would not unnecessarily interfere if some legitimate expenditure had to be made. On the other hand, at the SC level, the chairman (Sarpanch) would not often appreciate the need for expenditures and ask for their cuts/commission for co-signing the check. We also encountered this problem in MP and UP as well.

As against Rajasthan, MP has the practice of putting deputy Tehsildar (a revenue department official at Block level as a Chairman and co-signatory with the medical officer to operate the RKS funds. The system again faces stumbling blocks and difficulties of similar nature as faced at SC level. Moreover, the deputy Tehsildar is usually busy with his/her own work and hence the delay in RKS meetings. At the CHC level, the RKS account is jointly operated by SDM (a revenue department official at the block) and BMO. The same problems are reported. As against this, UP has only one signatory to operate the RKS account after taking approval for expenditure in the monthly RKS meeting. The funds are operated by the medical officer alone, neither a political representative nor a revenue department official is involved in operating the funds.

Most of the VHCs were formed only within the last one or two years with ASHA as joint secretary, AWW, principal of the school and some local leaders as the members. As yet, most of the VHCs were not found to be active, particularly the community representatives. There was no clarity about their role in the Committee, the role of the Committee, the importance of regular meetings, etc. Even the Sarpanch who was chairing the committee had no idea about these things. Sometimes he had not even heard about NRHM. The school principal also did not know much about the VHC in which he was a member. Although the Committee was formally formed months ago, he was informed about his membership of the Committee only a few days back. The general awareness in the public and its representatives about NRHM and VHCs and their rights and roles seemed to be limited. Representatives on the VHCs are not aware about the roles and functions of ASHA, ANM, and AWW. Although ASHA is generally selected and appointed by Sarpanch with the Gram Sabha (People Assembly) approving it, he had very little clarity on the role and duties of ASHA and ANM. Most of

the time, the Sarpanch and other members thought that ASHA would take children for immunization and ANM would administer the doses.

If such is the awareness about the functionalities on ground on the part of local leaders and people's representatives on VHCs, how does the system work? It works because ANM obtains signatures of some members of the Committee in the register maintained as a record of the meetings of VHC. The reason for such a lack of interest on the part of the members and chairman is the ignorance about their role and functions in the whole process. NRHM Mission Document clearly states the need for training and spread of information to the PRI members. However, the timelines provided no space and no explicit mention about the 'training' component. As a result, training at the grassroot level has not taken place leading to lack of appreciation and understanding resulting in indifference and lack of interest. The training or campaign to spread awareness and information should not be confined only to the members of VHCs, but should also include community at large to have effective public participation in the program. The 'sanitation', health and hygiene part of the duty and responsibilities of VHC or VHSC is a critical component of NRHM and ASHA can be successful only if she receives support from PRI and VHSC as we have seen earlier corroborated by our regression findings.

The situation at the PHC/CHC level is somewhat better but largely comparable. Barring a few exceptions, the RKS at PHC/CHC level also faces the apathy and lack of interest of the people's representatives. In several cases, the RKS meetings are not held for months together and when the meeting does take place, no more than 3 to 4 members turn up. The usual practice is to take signatures of the members in the official register at their homes. Other than lack of awareness and information about the role, functions and duties of the members and the committee, one possible reason for the general apathy on the parts of the members is that the funds available for spending on requirements remain uncertain and made available very late in the year. This delay in the release of funds is a systemic problem and can be traced upwards to the central government budget process.

The RKS generates own funds also through collection of OPD, in-patient fees, and user charges from patients. Besides, it also receives funds from the district as a part of NRHM program. In UP, Block PHC also spends for Additional PHCs and collects their revenues from OPD, etc. The funds of the RKS were mainly used for the repair and maintenance work of the PHC/CHC building, buying furniture, buying required medical equipments, cleaning and sanitation purposes, and purchase of medicines that are not available in the HF for the BPL (Below Poverty Line) patients. HFs also receive untied fund which is used to fulfill any of the above requirements for which the RKS fund is inadequate. A common problem encountered by some of the PHCs was regarding the spending of the RKS and untied funds. There is a lack of proper guidelines available to the doctors and hence sometimes they are reluctant to spend funds. On the other hand, there is a constant pressure built up on the doctors to spend the available funds as soon as possible irrespective of whether there was any expenditure required. The doctors also complained about undue increase in administrative work and responsibility due to the RKS and other NRHM activities. They faced constraints on taking administrative decisions about spending the funds for legitimate purposes without approval of RKS members in the meeting that would not take place.

Regarding the funds transfer from above, there are some interesting facts. At the PHC level, the frequency of funds transfer varies according to the type of funds. For instance, the JSY fund for incentives provided to the patients for the institutional deliveries came regularly, but the other funds such as RKS and untied fund were considerably delayed. This then transmits down and ASHA and ANM also receive delayed payments. Even doctors appointed on contract at PHC and CHC did not receive their salary for 6-8 months. Since institutional deliveries are specifically targeted along with immunization of children, these two funds are relatively quickly released. The other funds as usual and may be more delayed showing hardly any visible improvements in the overall government management and efficiency. In fact, very often the funds are released as late as January end or February and the authorities at various levels insist that they should all be spent before end-March.

There are serious difficulties under such a situation when the people's participation in the form of committees has to approve the expenditures fast.⁸ The problems only compound for the functionaries when the committee members lack interest, appreciation and commitment to a cause. Such crucial aspects and practical difficulties created by the systemic constraints from above have to be considered thoughtfully before an elaborate structure of people participation is proposed.⁹

IV. District Program Management Unit (DPMU)

The team visited four DPMUs –Chittorgarh in Rajasthan, Sagar in MP and Azamgarh and Sitapur in UP. Each DPMU consists of a district program manager (DPM), district accounts manager (DAM) and district data manger. In UP however, it also consists of a district community mobilizer. All the visited units reported to have started functioning only in the last one year with most of the staff recruited in the last quarter of 2008. **Table 37** gives the details about the existing manpower in various DPMUs visited.

Table 37: Details of Existing Manpower in DPMUs					
State	District	DPM	DAM	DDM	DCM
Rajasthan	Chittorgarh	1	1	1	-
MP	Sagar	1	1	0	-
UP	Azamgarh	1	1	1	1
	Sitapur	1	0	1	1
Notes: DPM - District Program Manager; DAM - District Accounts Manager; DDM - District Data Manager & DCM - District Community Mobilizer					
<i>Source: NRHM Evaluation Survey 2009</i>					

The district program managers (DPM) of all the units reported that they receive the funds of NRHM directly from the state through electronic bank transfer. These funds are further transferred to the block level in the same way from the district. The signing authority of transferring the funds lies with the CMHO (Chief Medical Health Officer) of the district. Moreover, for the monetary requirements at the DPMUs, the funds were transferred to the joint account of the DPM and one of the other officers of the unit. Some of the major heads under which these units receive funds are (i) RCH (Reproductive Child Health) flexi pool fund, (ii) NRHM flexi pool fund and (iii) immunization fund. Three of the units also shared with us the total budgeted amount and total expenditure incurred under these heads. **Table 38** gives the details of the same. As seen from the table, the utilization of the budget has been increasing as time passes.

⁸ As a consequence, sometimes, out of such funds sweepers, security guards, etc get appointed at the PHC/CHC level.

⁹ In some RKS, people's representatives are more dynamic and have clear idea about the facilities required to be created with reasonable priorities. In such cases, delays in funds create fewer problems.

Years		MP	UP	
		Sagar	Azamgarh	Sitapur
2005-06	Budgeted Amount (Rs. Lakhs)	195.4	-	-
	Actual Expenditure (Rs. Lakhs)	76.2	-	-
2006-07	Budgeted Amount (Rs. Lakhs)	64.4	-	-
	Actual Expenditure (Rs. Lakhs)	19.8	-	-
2007-08	Budgeted Amount (Rs. Lakhs)	35.2	1338.4	-
	Actual Expenditure (Rs. Lakhs)	32.7	642	-
2008-09	Budgeted Amount (Rs. Lakhs)	700	1790.5	1455.48
	Actual Expenditure (Rs. Lakhs)	662	1248.7	1233.11

Source: NRHM Evaluation Survey 2009 as reported by DPMUs

The DPMs are also involved in monitoring of the NRHM program in the district. An important indicator used by most of the units was the number of institutional deliveries conducted at the PHCs and CHCs level in the district. They also monitored the number JSY payments that were made at these health facilities and the number of deliveries accompanied by ASHA. Moreover, the DPMs also reported to be visiting some of the beneficiaries of JSY at the village level and interviewed them using structured questionnaires. These questionnaires are part of monitoring guidelines provided to the units by the state. The units also prepare reports as part of the monitoring process and send them to the state authorities. All the units have reported to have received feedbacks from the state on the basis of the reports sent by them.

The DPMs also reported certain problems and challenges they faced in the implementation of the program. One important challenge was the low availability of manpower especially the doctors at the health facilities in the district. They also reported lack of coordination and cooperation between the health facilities and the DPMUs for the purpose of monitoring of the program. Lack of required authority to take certain administrative decisions for the units was also a problem faced by the DPMs. In the case of non-performance of paramedic staff at the village level such as AHSA or ANM, it is not possible for the DPMs to take any corrective actions directly. The feedbacks given by these units to the paramedic staff are also not necessarily accepted. The DPM in Azamgarh finds misreporting of facts by the CHCs and PHCs as an important challenge.

Among the major suggestions given by the DPMs, one was to increase the authority given to the units in order to take direct actions and administrative decisions. Another suggestion was to generate a post of program manager at the block level in order to decrease the administrative work load of the block medical officer who is otherwise overburdened with administrative responsibilities. Some DPMs felt that the location of DPMU within the district administrative structure also plays an important role. If it is located within the office of the Chief Medical and Health Officer (CMHO) like in MP, it would affect the work and efficiency of DPMU because a lot of routine and clerical work in CMHO office would flow to them. On the other hand, if it is located outside CMHO office like in UP, they can concentrate on their work better since they would not be burdened with routine clerical work of CMHO office. However, one could argue that a common location would facilitate better communication and management as we describe below.

Chapter VII Key Challenges Observed from the field Uttar Pradesh, Madhya Pradesh and Rajasthan

Uttar Pradesh:

UP has the second highest maternal mortality rate (MMR) in the country, 440/100,000 (India 254) live births as per the 2004-06 Special Survey of Deaths estimates¹⁰. Infant mortality rate (IMR) in UP stands at 69/ 1000 live births as per the 2008 SRS survey¹¹.

Challenges:

1. Manpower:

a) Medical Officers: There is a serious shortage of staff especially medical officers (MO). Typically only 50% of positions are filled at all the centers we visited in Jalaun, Jhansi, Lalitpur, Varanasi and Allahabad¹². With the new policies and particularly Janani Suraksha Yojna (JSY), their workload has certainly increased dramatically. Often one MO is doing the work for 2-3 MOs and keeping up with the demands of administrative tasks as well. Although there is a serious need of additional MOs, incentives for them to join the government health services and actually stay there are lacking. MO currently is paid Rs. 12,000 per month and specialists Rs. 18,000 per month (which is approximately 1/5th of what is paid in the private sector) Although there was a recommendation to pay Rs. 18,000 to MOs under NRHM contract, it was repealed by the Supreme Court. All the MOs we spoke with would be willing to join if they were paid between Rs. 30,000-Rs. 40,000 per month, which is a normal pay scale in other states like Haryana and Punjab and other NRHM high focus states like Assam for hard duty.

Currently, there is also a scheme to hire MOs and specialists on contract for Rs. 1000/day. However, just the transportation to some of the remote rural areas cost about Rs. 500 each way. Therefore, no specialists participate in this plan. Also, there are no proper living quarters for the medical staff. They are housed in old buildings or situated too far from the village. JSY beneficiaries have increased from 100,000 in 2006-07 to 960,000 in 2007-08, almost tenfold. However, recruitment of medical and para-medical staff hasn't kept up. For example, a very typical situation is depicted by the condition at the Women's Hospital in Orai, District Jalaun in UP: this hospital conducts about 600 institutional deliveries per month. Out of 11 positions for staff doctors, only 5 are filled, and only two are present at any given time because of other field duties. No anesthetist is available. There hasn't been an increase in staff since the institution of JSY scheme. Administration and maintenance of the records is a huge task. They haven't gotten any additional financial or administrative support. Dr. Prabhavati Jain is the only senior administrator and is managing everything from making sure that the JSY reports are created on time to making sure that the toilets have been cleaned. She also happens to be a gynecologist, and given the shortage of staff, she has a full load of clinical responsibilities as well. Human resources available are strained to their utmost, and although the health facilities are capable of providing quality care, it is limited by the human resources it has.

b) Nursing staff is short everywhere we visited. Contractual staff has not been placed everywhere yet. At least three ANMs are needed to make primary health centers 24X 7 facilities. Most PHCs are working with only one MO and one ANM. ANM training schools stopped recruiting in 1997. Now 16 out of 45 schools are starting to

¹⁰ Data reported by the Registrar General of India in May 2009. Assam with 480/100,000 live births has the highest MMR in India.

¹¹ According to the figures released by the Registrar General of India in May 2009 per the Sample Registration System. MP with 72 and Orissa with 71 have higher IMR than UP.

¹² These are some other districts that we visited in UP other than our focus districts.

recruit again. Since there is such a shortage of para-medical staff, rest of the institutions should be opened as soon as possible in order to train ANMs that would be easily absorbed especially given the high work load post JSY. Although most sub-centers have ANMs, but most of the ANMs don't stay at the SC because of lack of a proper place to stay.

2. Infrastructural Capacity:

Although there is a huge increase in the number of institutional deliveries, capacity building has not kept up with the increased load of JSY patients. Physical resources, similar to human resources, are strained.

Most centers that are actually functional are overcrowded with patients flooding the wards and the hallways. District hospital in district Varanasi was lined with beds in the hallways. In CHC Phulpur, in district Allahabad, maternity ward was so crowded that the nurses had to request all the attendants to leave even though attendants often take good care of the patients and make up for the lack of nursing staff at the hospital. In district Varanasi, only 10 out of 49 SCs are accredited for institutional delivery. Mainly because there are no proper facilities for the ANMs to stay at the SC, and the SC doesn't have a building and is running out of a rented room. SC Phulpur in district Varanasi has a residential ANM and has been accredited only since August 15th 2008. In four month, 62 institutional deliveries have been conducted at this center. This center, however, doesn't have a toilet for the patients and the ANM is using her personal toilet for the patients. Similarly, SC Sidhora also in district Varanasi is running out of a very old government building. Still it has been able to conduct 151 institutional deliveries in the last four months. Formerly a SC, PHC Namayatpur in district Jalaun is run by an ANM and an AYUSH MO. However, there is no proper building or labor room or quarters for the ANM to reside. Deliveries are conducted in the back veranda. Corner of the front outdoor lobby has been sectioned out as a bathroom. From April-October 2008, this center has conducted 275 deliveries. We were taken to the new building for this PHC that has been constructed, far away from any village, but hasn't been handed over because of leaks that were pointed out right after the construction. It is uncertain when the building will be handed over.

A sub center is the lowest service unit in the government sponsored health program in India, and the unit most accessible to the rural population. However, sub centers are in very poor shape. 2 out of 22 SCs are accredited (have the basic facilities to conduct a delivery) for institutional delivery in district Jaunpur and 10 out of 49 in Varanasi district. Of the ones that are accredited, some are running out of very old buildings like SC Hirmanpur, where the ceiling is coming apart or lack some basic amenities like a functional toilet as seen in SC Phulpur district Varanasi. Similarly, in Allahabad district, out of 551 SCs, 65 have residential ANM, 95 have a government building, and 30 have ANM that commute daily to Allahabad. Often PHCs and CHCs were created far from the population. Even some of the newly constructed PHCs were located far away from the village. FRU Handia in Allahabad district was 14 km from the closest village. New PHC Bhansi district Lalitpur was relocated from its location within a village to a much farther and inaccessible location. Because of its location, it also lacks water supply. Not only does such a location make it harder for the people to get to the services, it also makes it more challenging for the medical officers to actually stay at the facility.

Given the high load of JSY, hospitals haven't been able to keep up with the high demand for services. Beds were in short supply at various hospitals and people were laid out in the hallways, toilets and wards were often dirty, linen was consistently dirty at every hospital and baby warmers were lacking in most hospitals. There are no provisions for attendants, for food, clean water or waiting area to rest, while the attendants wait for the patients.

3. Communication and Management:

Each district has a district health society, a governing body that is headed by the district magistrate (DM) and is responsible for overlooking all the NRHM projects. CEO of the governing body is the Chief Medical Officer (CMO). Executive body is chaired by zila parishad and CMO and chief executive officers are district program managers. As mentioned earlier, Rogi Kalyan Samities (RKS)/Hospital management society is created to increase transparency at hospital level: Community health center and primary health center. Governing body is chaired by the DM and the member secretary is medical superintendent of the hospital. Executive body is headed by the medical superintendent of the hospital. Further at the village level, VHSC is headed by the panchayat head and ASHA is a member secretary. Therefore, there is supposed to be a close working relationship and communication between the NRHM administrative staff and the CMO office. However, that hasn't been accomplished yet.

Moreover, the government officials do not regard the NRHM administrative staff, which is hired on contract as part of the government system. This lack of integration creates barriers in communication and implementation of policies. In Jalaun district, NRHM team, district project managers and the accountant are not given support by the officials of the CMO staff (for example providing vehicles for field visits) in order to do their job of monitoring NRHM policies in the field. Also, in most places including the CMOs in various districts, like Lalitpur for instance, didn't know the role of DPMs and BPMs. There needs to be an initiative towards integrating these two processes, NRHM and the former medical system. As described above in the structure of the health committees, success of NRHM relies on these two working closely together. May be having NRHM offices in the DH and BPM office in the CHC would be a good start towards bridging this gap.

Each SC receives Rs. 10,000 as untied funds per year, each PHC receives Rs. 25,000 as untied fund and Rs. 75,000 from RKS funds per year, each CHC receives Rs. 50,000 as untied funds, Rs. 75,000 from RKS and Rs. 100,000 for maintenance funds per year. Medical officers, hospital supervisors and senior administrators are unclear on how to actually spend these funds. In CHC Kalpi in Jalaun the medical supervisor wasn't comfortable using the RKS for a generator for the hospital. CHC Phulpur in district Allahabad, neither block medical officer nor the medical officer in charge knew what they could utilize untied funds for, while the hospital lacks electrical fittings, is very short on sweepers and doesn't have a single baby warmer in any of the labor rooms. Similarly, PHC Pindor in Varanasi district, although in dire need of janitors and sweepers, medical officer in charge didn't know that they could use RKS funds to hire sweepers on a daily wage basis. Amongst the many meetings conducted at the district level, there needs to be a focused meeting on educating all the MOs and supervisors on the details of the Program Implementation Plan (PIP) for the district and how to utilize the funds for the betterment of the facility. They need to be encouraged to take the initiative to spend the money and ownership of the hospitals such that they can realize their power to actually make a difference in this system.

VHSCs are based at the village level to decentralize the decision making process. Funding for the SC is approved through the VHSC. It is headed by the Gram Pradhan, head of the village panchayat. As noted earlier, VHSC is non functional in majority of the areas we visited. In Phulpur SC, ANM reported that the Pradhan is not involved at all. ANM has to go house to house to get signatures to get expenditure for the SC approved. Similarly, another ANM we meet at Pindor CHC in Varanasi district reported that the Pradhan in their village wants Rs. 4000 out of the Rs. 10,000 to sign off on any expenditure for the SC, a common complaint heard repeatedly.

4. ASHAs:

ASHAs have been recruited throughout the state. There are about 130,000 women working as ASHAs in the villages of UP. Most of them are 8th grade pass, but in areas there weren't enough women who met this qualification, 5th grade educated women have also been hired, mostly in eastern UP districts. In Allahabad and Jalaun 50-60% of the institutional deliveries were accompanied by ASHAs. Recruitment of ASHAs has been very political in some areas like Jaunpur and Chandhori where ASHAs have been recruited by the Pradhans,

often their relatives and are non-functional. For instance, as per the CMO of Jaunpur 150 ASHAs have been recruited in this district, but only 100 are functional. When asked by CMO, why not evaluate what the ASHAs have done so far and recruit new women to replace the ones that are not working, we were informed that there weren't enough 8th grade educated women to replace the number that is not performing. Additionally, their political connections make the situation more complicated.

For ASHA training, as per Dr. Nita Jain, coordinator of ASHAs training in UP, 1st module has only been modified 5% from the original national version, 2nd module is now a combined version of original 2nd, 3rd, and 4th module plus additional information on national health programs and activism. It is conducted for 12 days straight to limit days away from family and work. Due to the large size (1.3 lakh ashas), first module was done in two phases. 64% of ASHAs have completed 2nd module. ASHAs in the field face certain challenges that deserve some attention.

-Payment:

An ASHA from Chaurasi village in Jalaun district reported that she had not received payments for her work during vaccination days that are held once a week at the Aaganwadi center. Similarly, in Lalitpur, another ASHA we encountered at the CHC while she was accompanying a pregnant woman, also reported that she had not received any payment for her work during vaccination day or pulse polio week. In discussion with ASHAs at Shahpur SC in district Varanasi, it became clear that they lacked knowledge about the financial aspects of their job, how to fill out the vouchers to get paid etc. This should be a part of their training; however, it is not included in any of the modules.

-Transportation costs:

ASHAs are given Rs. 250 for transportation to bring a pregnant woman to a HF. They don't get this allowance if they are bringing in a patient from the village or town where the PHC or CHC is located. However, if they are coming from a much farther distance where they sometimes spend Rs. 400 and above they are not given additional allowance. Isn't there a better way to compensate based on km travelled? For example, certain amount if you travel under 10 km, between 10-20 km etc or at least pass on the amount that is not given to ASHAs who come from nearby to the ones who travel much longer distances.

-Professional Mobility:

At Pindor CHC, we met with an ASHA from Persara village in Jalaun district, who happens to be highly educated (BA). She is working with a population of 1600, and has brought 20 ID in the last 9 months, 100% of deliveries in her village. For ASHAs that are performing well and have a much higher qualification, need to be encouraged to enroll in ANM or other para-medical courses for further training so that they can have a professional incentive and so that they could be utilized better.

Challenges for further increasing institutional deliveries:

In UP, as per the NFHS II survey 23% of the deliveries are institutionalized. Although, many hospitals looked much cleaner than they did in the past, quality of care is still quite low. It is not surprising that patients in various places do not stay more than a few hours even though JSY requires them to stay for 24 hours at a minimum. For instance, in Kalpi CHC district Jalaun there were 6 deliveries the night before, but not a single patient was in the wards. There are various challenges to further increasing this number, while improving quality of care. Some of the major challenges are discussed above, like manpower and infrastructural limitation leading to poor quality of care. Another major challenge in UP that we encountered was the problem with JSY payments. In district Lalitpur, JSY payments were not made in time. 210 patients had not been paid since

October 2008. CMO of Lalitpur reported that they had not received the funds on time, and they had used funds that were allocated for other programs to pay for JSY and now even those funds had run out. This hospital also happened to be empty with no patients in the wards. In Chandhori CHC, payments were not made on time either. When inquired about this issue, we were told that funds that not come from the state on time. In every hospital that we visited in UP, every single one of the patients had paid at least Rs. 500 for delivery of a baby boy and Rs. 250 for a girl to the ward helpers or nursing staff. This practice has become so widespread that at Chandhori CHC in Chondhori district, patients didn't realize that it wasn't part of the actual fees for services, and they were told by the staff at the hospital that they were getting JSY payment of Rs. 1400 partly to pay these fees.

Gujarat has initiated a scheme by involving private healthcare providers to reduce maternal mortality in the State. It is called the Chiranjeevi Scheme¹³.

What the scheme has achieved?

- The scheme was initiated in the 5 pilot districts of Gujarat in November 2005. It was scaled up to the entire 25 districts of the state in September 2006.
- It is one of the first public policy initiatives in the country to involve the private sector in such a big way to deliver maternal health care services. Capitation payment system used as the payment mechanism to transfer resources to private practitioner was first of its kind to be used at such a large extent.
- Chiranjeevi scheme covers about 300,000 deliveries, of the total 1.2 million deliveries being conducted in Gujarat, annually.
- Under the scheme 235,289 deliveries (November 2005- September 2008) have been conducted across the state, which is about 6.5 percent of all the deliveries conducted in the state during this period.
- 868 out of the total available 2000 gynecologists in private sector in the state are empanelled in the scheme.
- State spent Rs. 218 million on the Chiranjeevi scheme in 2007-08, which is about 1.84 percent of the total state health budget.

What the scheme is not doing?

- Quality of service component is ignored in the scheme.
- Inadequate package design
 - The package does not cover post-natal care, neo-natal care and covers only one ante-natal visit
 - The scheme assumes the C-section rate to be 7 percent across the state, but range of rate of C-sections is from 2.9 percent in Dahod to 20.4 percent in Porbandar district.
 - In a scheme which was supposed to be cash less for the targeted beneficiary, out of pocket expenditure incurred by the beneficiaries in Dahod and Panchmahhals districts were Rs. 727 and Rs. 2100 respectively on an average.
 - The average length of stay of the beneficiary is less than the standard, both in case of normal and cesarean deliveries.
 - The payment mechanism used in the scheme provides incentive to the practitioner to under provide and refer high risk cases as there is a big variation in the cost of two episodes of delivery, normal and cesarean. The payment mechanism (capitation payment system) used in Chiranjeevi scheme has been previously used elsewhere in the world for events that are relatively certain and have fewer variations.
- The private practitioners are not clear about the package break-up

¹³ Prabal V. Singh, 2009. "Managing Maternal Health Care through Public Private Partnership: Policy Issues and Implications, A case study of Chiranjeevi Scheme in Panchmahals district of Gujarat, India". Ph.D. Thesis dissertation, Indian Institute of Management, Ahmedabad.

- Beneficiaries are being charged for provisions which are already there in the package, like cost of blood, laboratory test, sonography, and one ante-natal visit.
- About 10 percent of the beneficiaries availed the benefit of the scheme in spite of not having either BPL or ST certificates.
- Very weak monitoring system in the scheme.
- In the household surveys carried out in Dahod and Panchmahals district of Gujarat, the sex ratio in deliveries being conducted under the scheme was found to be significantly less than that of Non-Chiranjeevi group.

What needs to be done?

- The package needs to be redesigned.
 - Indicators for quality of service should be incorporated in the MoU signed with the private practitioners. Practitioners need to be screened for number of deliveries conducted in a year, rate of c-section and complications, sex ratio, length of stay, status of the child birth, maternal deaths and morbidity and satisfaction of the beneficiary.
 - Post natal and neo-natal care component should be a part of the package.
 - There should be revision of rate of the package periodically.
- Monitoring system needs to be strengthened. Primary and secondary information should be used to monitor the scheme.
- There should be a mechanism to check referral of high risk cases by the private practitioners empanelled in the scheme.

Madhya Pradesh - Key Challenges Observed from the Field

1. Manpower:

Institutional deliveries have increased significantly, however, similar to UP, manpower strength is seriously lacking. In CHC Mandedeeep, 40 km from Bhopal, (the state capital) institutional deliveries have increased from 4-5 per month to 45-50 per month. Deliveries have increased ten times, however no additional staff has been recruited. The only female doctor is also in charge of this CHC; therefore the administrative and clinical demands of her job have increased exponentially. It is only natural that the quality of care will eventually be compromised. Similarly, in Abdaiduhaganj BeMoc FHC (Field health center, a level below CHC) located 70 km from Bhopal institutional deliveries have increased to 165 per month from 35-40 per month. However, there is no change in staff. In PHC Goharganj and Anganwadi, no doctor had shown up for days in this PHC. Dresser (the compounder) was seeing patients. CHC Bareli, 150 km from Bhopal, has seen a remarkable increase in deliveries with 200 deliveries per month. However, the wards, labor rooms were in the worst of conditions, overcrowded, dirty, and dark and in dire need for more nursing staff.

Like in UP, there are similar impediments: lack to incentives for medical officers to work in the public system. However, it is also important to note that there is difference in quality of hospitals even though they are run by the same number of staff and have the same infrastructural limitations. CHC Ghandhinagar in district Bhopal and CHC Mandedeeep in district Raisen have the same number of deliveries and similar shortage of staff, yet the difference between the two facilities was obvious. Ghandhinagar was dirty, empty, labor room without a new born corner and registration office closed during working hours. Similarly, CHC Bareli in district Raisen and CHC Eichawar in district Sehore have about the same number of deliveries. Eichawar's in charge has invested untied and RKS funds in hiring sweepers and buying labor tables. Although Eichawar had more patients in the wards, with significant overflow in the hallways, it was significantly cleaner and the labor rooms

were well maintained. Although lack of manpower is a major problem, lack of ownership of and initiative amongst the workforce employed, especially the medical officers and administrators varies across the state.

2. Infrastructural Capacity:

As mentioned above, various health centers are lacking infrastructural input needed to improve quality of care. CHC Eichawar in district Sehore had patient beds lined up in the hallways. Maternity wards in CHC Bareli were dirty and overcrowded. Labor rooms had old labor tables and no proper baby corner. Number of JSY patients exceeds the capacity of maternity ward. JSY patients are also admitted to the general wards and general ward patients are forced to lie in the hallways.

3. ASHA:

35000 ASHA have been recruited and all of them have received at least 1st module of training. Payment of ASHAs in MP is different than most other states. ASHA are not paid Rs. 250 for transportation because transportation of pregnant woman to the hospital is the responsibility of Janani Express, ambulance service with a toll free call number. If the ambulance is unreachable, woman's family pays for the transportation and is later reimbursed by the state. ASHA do not appear to be active in the field. In Raisen district, Mandedeeep CHC only 4 out of 45 deliveries were accompanied by ASHAs. In Abdaiduhaganj BeMoc, 10% of deliveries are accompanied by ASHAs. In Eichawar CHC in Sehore district, only 65 out of the 249 deliveries in the month of September 08 were mobilized by ASHAs. A major issue is the state guidelines, which makes all mobilizers eligible for compensation diminishing incentives for ASHAs to be involved. Since dais have been around for a long time, most women bring dais along.

Also, there are various cases for dais and anganwadi workers paying Rs. 100 to get the Rs. 350 even though ASHA had done the work during the last nine months. Sehore CHC in charge complained to the state administration about this confusion in the policy. After repeatedly writing letters, he was told not to pay anyone but ASHAs, however it wasn't clarified what to do for areas where there are no active ASHAs yet. In Sehore at least, the person in charge has decided to pay only ASHAs the full amount while giving additional Rs. 100 to dais that assist in the delivery. However, this is still not very effective because most women bring only dais along with them. There were cases reported to us by ASHA who said that dais would ask for half of ASHAs compensation to allow for a woman to be brought in for institutional delivery. This issue is a major hindrance to institutional delivery throughout the state. In Lasulya Kangar Anganwadi in Sehore district, ASHA don't want to take any deliveries because of the fear of dais.

ASHAs haven't been paid on time for their contribution in bringing children for vaccinations. In Abdaiduhaganj BeMoc, ASHA payments were held for months. Similarly, in Mandedeeep CHC, funds are not released on time for immunization days. Numerous ASHAs had not been paid for their work for immunization days for 6 months at a time. We heard a lot of stories about payments being held for months and then ASHAs only being paid Rs. 100 or so for their job for which they are supposed to be paid Rs. 150. It is only natural that eventually, ASHAs will avoid their jobs for which they are not paid on time and only fraction of what they were promised. In Goharganj anganwadi (see picture below), the anganwadi worker had not seen ASHA for any of the immunization days. Also, these vaccination and pre-natal check up are held in anganwadi centers, which are typically one room in a shabby condition overcrowded with small children. It is unclear how ANM do the pre-natal checks for women, which may require a physical examination and vaccinations for the children all at the same time and same room when children are having their regular session at the anganwadi. Three of the four anganwadis visited in Sehore district were empty with no anganwadi in site during working hours.



Anganwadi Center,
Goharganj, Sehore
district, MP, October
2008
Anganwadi center
operates out of a single
room with broken
furniture. Weekly ANC
checks and
vaccinations are
supposed to be in
conducted in this space
as well.

4. Communication and Management:

Decentralization of decision making through VHSC has not been accomplished yet. VHSC are not active in most places we visited. At an ANM meeting in CHC Eichawar, ANMs reported that VHSCs were either nonexistent or if they did exist, they were much more focused on the sanitation issues of the village while completely ignorant about their role in healthcare. In Lasulya Kangar Anganwadi in district Sehore, ANM reported that VHSC is not active. At Sherpur and Pangrakit anganwadis, ASHAs were recently appointed and didn't know anything about their roles and powers as the member secretary of VHSC or the role of VHSC for that matter. People on the ground are not encouraged to report any problems and are actually intimidated by the hierarchy above. They do not even know who would be the person to call at the district or state level to report the problem. No doctor had shown up at PHC Goharganj for days and a dresser was seeing patients. The dresser present did not know who to report to and seemed confused at the idea of calling up someone in Bhopal to actually do that.

Management and accountability needs to be much more precise to ensure that all the jobs are being fulfilled appropriately. There needs to be a person in charge of each worker in the system. Part of this is the job of VHSC, however, until VHSC is active in each village this gap needs to be filled to ensure a functional system. In CHC Mandedeep in district Raisen, untied funds are not available on time. Funds are released late (September as opposed to April), so the MO in charge can't plan to hire sweepers or other daily wages staff until April and when the funds do arrive they need to be used up quickly to submit utilization forms as we have noted earlier. The MO in charge here did not know who to report this problem to. Similar to UP, there is a lack of understanding of proper use of untied and RKS funds. CHC Bareli is without a generator and lacks basic labor room equipment such as labor table and episiotomy scissors. The female doctor who reported this to us didn't know that untied funds or RKS can be used for these requirements. If untied funds run out, more funds can be requested from the state for these specific needs.

On the level of patient communication, there are signs everywhere explaining JSY and the payment systems. Announcements like the one below are posted at every hospital in local language. However, women are usually unaware of the payment, unless there is an ASHA involved, and it is typically the husbands who knew about the scheme. Therefore, strengthening ASHAs place in JSY and not splitting their incentive with dais or anganwadi will be imperative for the success of this scheme.

जननी सुरक्षा योजना

गरीबी रेखा के नीचे जीवन यापन करने वाली सभी वर्ग की गर्भवती महिलाओं को अस्पताल में प्रसव करवाने पर दो जीवित बच्चों तक एवं तीसरे प्रसव पर प्रति/पति द्वारा नसंबंधी करवाने पर निम्नानुसार राशि प्रदान की जाती है।

हितग्राही	राशि	प्रेरक	राशि
शहरी	1000/-	शहरी	200/-
ग्रामीण	1400/-	ग्रामीण	600/-

प्रेरक राशि दो किस्तों में दी जावेगी। पहली किस्त महिला के अस्पताल से छुट्टी होने पर एवं दूसरी किस्त महिला के प्रसव पश्चात महिला स्वास्थ्य कार्यकर्ता द्वारा तीन जांच व शिशु को बी.सी.जी. एवं पोलियो का 0 डोज टीकाकरण होने के बाद ही दी जावेगी।

Eichawar CHC, district Sehore, MP, October 2008 Patient and ASHA information board with details of JSY informing patients about payment they will receive for institutional delivery in a public health center, that is, Rs. 1400 if they are rural residents or Rs. 1000 if they are urban residents, and informing ASHA about their payment schedule.

Innovations:

-Urban Dispensaries: PPP with Sevabhartiya NGO: Two functioning urban centers have been created with collaboration with Sevabhartiya. These centers are managed by this NGO, which has employed MOs and one gynecologist. Both the center together have 25 USHAs (urban ASHAs) working in the community who are trained by the NGO in same jobs that is done by ASHAs in the village. Each center has an about 30-40 outpatient visits each day. These centers were cleaner, well staffed and equipped with all necessary requirements, better than any other SC we visited.



Urban dispensary,
Bhopal, MP, October
2008
USHA workers at the
urban dispensary
They work in the
community and their role
is similar to ASHA
workers, but in urban
areas.

-Urban RCH camps: Provides care in slums that are not very close to SCs or the population doesn't make it out to the dispensaries. They are held in the slum areas once a month. It costs Rs. 1 million per year, which includes salaries of two physicians, van and equipment (ultrasound machine etc). These camps provides services like ANC checks, vaccinations, basic labs and work up of common illnesses. They see about 50-60 people per visit.



Urban Slums,
Bhopal, MP,
October 2008
Surroundings of an
urban RCH camp
are shown here.
These camps are
held in slum areas
where the residing
population doesn't
have easy access to
public health
systems.

Janani Express Yojana: Exists in all districts of Madhya Pradesh. It is a transportation system that is always available by dialing a toll free number. Transportation costs that are generally given to ASHAs in other states is given towards this yojana. Therefore, ASHA only gets Rs. 350 for ID and first immunization. However, in the field the districts that we visited, the use and availability of this transportation system was variable. It is unclear how the vans are functional without any GPS support or algorithm to prioritize where to go first when the calls come in. It is still unclear what to do with complicated deliveries. Only in Sehore district did we hear that 80%

of women were brought by the express, in other districts there weren't many people who used this. Instead, people generally came on their own and the beneficiary was compensated Rs. 250 for transport.



CHC Eichawar, district Sehore, MP, October 2008

Janani Express parked at the CHC. At all times a driver carries a cell phone with a number that is advertised all over the area. Express is supposed to guarantee a safe mode of transportation for a pregnant woman.



Eichawar CHC, district Sehore, MP, October 2008

Information for patients on hospital wall-educating about male sterilization (far left), Janani Express (middle) and benefits of institutional delivery (right).

Rajasthan -Key Challenges Observed from the Field

1. Manpower:

Similar to UP and MP, there is severe shortage of medical staff in the field. Under NRHM contract, 1400 medical officers have been recruited. Additional incentive is given to MOs under NRHM for rural duty: extra Rs. 4000 for “hard duty” for 556 remote PHCs, and additional Rs. 3000 for working in a rural setting. Also, GNM and ANMs are given an additional Rs. 1500 for rural incentive and Rs. 1000 for hard duty in addition to the base salary paid by the Government of Rajasthan. However, rural areas we visited were lacking staff and had not seen much change in manpower since the implementation of JSY.

Dungarpur is primarily a tribal district. It is almost impossible to attract doctors to stay there. Even the district hospital has 16 out of 46 required physicians. Lack of manpower, creates serious challenges for night duty and managing increased inpatient and outpatient load secondary to JSY. Institutional deliveries have gone up to 70% since implementation of JSY in 2006, which also means significant increase in ANC visits. For total district peripheral centers, there are positions for 52 MOs, but only 42 are filled. There are no specialists in any of the hospitals (only four out of the 18 appointments are filled.) In district hospital in Dungarpur, there is equipment like ultrasound and TMT machine available, but there is no one to operate them. Kotda, in district Udaipur, is home to one of the most backward tribes of Rajasthan. Literacy rate is less than 10% and has very poor connectivity to Udaipur city. Further, families are spread out on separate hills, which make the job of ASHAs and ANMs even harder. No doctors or administrators want to be posted here. There is one MO, who is also the block CMO and also Block manager. There is no additional incentive to be based in Kotda, which has very hard conditions of all the other rural areas. There are no appropriate living quarters for them. Food, communication and safety are also major challenges. Out of the 1400 MO recruited by the state, none had been posted in this area as of October 2008.

In district Jaisalmer only four of the 15 PHCs have infrastructure and manpower for institutional delivery. Four of the PHCs are not staffed by a MO. None of the block CHCs have a specialist. Because there is no anesthetist in any of the CHCs, no major surgeries can occur. Patients have to travel 200 km to Jodhpur for major surgeries. Barmer, another desert district on the border with Pakistan, is also gravely short on staff. One of the PHCs we visited, Chava PHC, was run without any MO. ANM from another PHC comes there every other day.



Chava PHC, District Barmer, Rajasthan. November 2008. ANM in the labor room. This facility doesn't have a medical officer is run by only one ANM, who is actually posted at another PHC. She splits her time between the two PHCs that are miles away.

2. Infrastructural Capacity:

Zennana Hospital is a 476 bedded teaching Hospital in Jaipur. Since beginning of JSY in August 2006, numbers of deliveries here have increased significantly, from 700 to 1600 per month, more than double. However, the staff or the infrastructure has not increased which has led of increase in work load. A lot of normal deliveries are coming to this hospital. Villagers prefer to come here as opposed to the closest PHC or CHC mainly because peripheral centers lack proper infrastructure and staff. Over burden with JSY patients is compromising medical teaching and is clearly affecting the quality of care as well. Nangal PHC, in district Dausa, has the lowest rate of institutional delivery in a PHC in the state, five institutional deliveries in August 2008. This is because there is a lack of infrastructure-no labor room, labor table or a bed for a pregnant woman. PHC is running out of a single room. Although there are funds already approved, but there is a longstanding dispute over the land for the building. There has been no intervention from the state and the residents around the PHC are deprived of accessible medical care. Chomu CHC in district Jaipur has also seen a significant increase in deliveries, but the capacity of the hospital hasn't increased at the same level. It has stayed as a 30 bed hospital, all of which are being used for JSY patients. As per the CMO there they actually need 50-60 beds just for deliveries and another 50-60 bed for other patients. District hospital of Dausa, has increased institutional deliveries from 674 in 2005-2006 to 1700 in 2007-2008 without any accompanying increase in wards/beds or medical/paramedical staff. Beds were laid out in the hallways to accommodate JSY patients. Kotda CHC in district Udaipur, run by one MO officer, is gravely short on basic infrastructure. Wards are dark and dirty and labor tables are rusted. In the Sindhori CHC in district Barmer, there was no female ward. Labor room was dirty and lacked a baby corner. It is assigned to be a FRU but has no FRU related facilities: no blood bank, no anesthetist, and no female doctors.



Kotda CHC, District Udaipur, Rajasthan. September 2008. This hospital is run by only one medical officer. Labor room was dirty (left) and lacked a baby corner.

3. ASHAs:

ASHAs are called ASHA sahyoginis in Rajasthan. Formerly they worked as sahyoginis with the Department of Women and Child Development, (DWCD) and there was one sahyogini for every 1/1000. These women were hired as ASHAs and named ASHA sahyogini. These ASHA are paid Rs 400 at delivery (300 for transportation) and Rs 100 for immunization after delivery by check. They are given additional Rs. 150 for immunization session each month. They are also given Rs. 100 to attend meeting at PHC each month, and Rs. 500 by DWCD. This total of Rs. 750 is not given in a consolidated amount right now. Most ASHAs have finished two modules of training. Many ASHAs complained that their patients were not calling them during labor. Until June of 2008, pregnant women were getting 1700 instead of the current amount of Rs. 1400 if they were not accompanied by ASHA. So, even if an ASHA was involved for 9 months, many families didn't call their ASHAs because of monetary incentive to do otherwise. ASHAs seem to be relatively more active in districts like Jaipur, Dausa and Dungarpur. In many of the districts, especially desert districts, ASHAs are not very active.

In district Dungarpur, 1074 have completed first two modules of training. Currently 40% of deliveries in the district are accompanied by ASHAs. On average, ASHAs we encountered in this district were educated often 12th grade or beyond. They wanted a salary since they were doing a lot more in the field other than encouraging institutional delivery. They wanted to do more work, but wanted higher compensation. ASHAs who were highly educated and had graduated college, demanded a career track as well. In Kotda CHC, only 21 out of 119 deliveries were accompanied by ASHAs in September 08. As per a medical officer, not enough 8th grade educated women exist in this area to work as ASHAs. Also, families are really spread out in terms of area and ASHAs that are active are either not contacted or are not able to reach to the expectant mothers on time. Also, transportation cost is a major problem in desert terrain. Villages are on average 30-40 km from the nearest health center. Cost of transportation is usually about Rs. 600 (double the amount given to ASHAs for transportation cost). This is another disincentive for ASHAs and families to bring women in for institutional delivery.

In Jhadol CHC, also in district Udaipur, only 44 out of 135 deliveries were accompanied by ASHAs. District Jaisalmer is a desert district. ASHAs here are not very active at all; only 247 out of 486 ASHAs have been trained as of October 2008 and only 40 out of the 247 trained ASHAs are actually working in the field. During September 2008, one out of every six deliveries was accompanied by an ASHA in Lathi PHC. Many of

the ASHAs don't even live in the villages where they work and have been hired through political connections many of them being relatives of local leaders. Jaisalmer doesn't have enough 8th grade educated women to recruit another batch. However, there are 750 trained Dais (traditional midwives). These women are trusted by the community. All the pregnant and postpartum women we met in the centers were accompanied by these DAIs. Dais are currently not part of the JSY scheme. If they are given some compensation, institutional deliveries, immunizations and sterilizations would significantly increase. In Chava PHC in district Barmer only 10% of institutional deliveries are accompanied by ASHAs. Dais are involved with the rest of the deliveries either at home or bringing them to the centers. Similarly, in district Bikaner in Dungargarh CHC only 20 out of 187 deliveries were accompanied by ASHAs in September 2008 and rest of them are cared for by dais.



Lathi PHC, District Jaisalmer, Rajasthan. October 2008. ANM and Dai, traditional midwife, are working together in this PHC. ASHAs are not functional in this region and dais bring most of the women to a health center for institutional births.

4. Communication and Management:

Untied funds in various places we visited have been used for overall improvement of the facilities. However, in majority of places we visited, the medical officers in charge and administrators didn't have a clear idea of how to utilize untied funds. Rampura Dabri SC in district Jaipur is run by one ANM who has untied NRHM funds (Rs. 10,000/yr to purchase basic furniture for the SC. However, she lacked information on NRHM programs and what the untied funds could be used for. For example, she didn't know that she could get a sweeper with this money rather than spending her time cleaning. VHSC is not active and she didn't know who she could contact to get the appropriate information. In district Udaipur, Bhindar CHC had Rs.59,000 of the untied funds left unspent even though the hospital building can use significant work. The two medical doctors have no administrative staff and they themselves are clinically overburdened. They can certainly use additional sweepers, a decent water cooler for the public, benches for attendants, a proper labor room etc. In district Barmer, Sindhor block MO in charge didn't know what to use the funds for and all of the funds were unspent even though the hospital was dirty and lacked even the basic infrastructure.



Blindhar CHC, District Udaipur, Rajasthan. October 2008. Rs. 59,000 of untied funds were unspent at this CHC. While maternity ward is poorly maintained (left), there are no benches for attendants of patients.



Baytu CHC, district Barmer, Rajasthan. November 2008. An old ambulance at this CHC shown on the left. Untied funds have been completely unutilized at this CHC and no new ambulance has been purchased.



Sindhori CHC, district Barmer, Rajasthan.
November 2008.
Labor room at the CHC shown on the left. This center is also assigned to be a First Referral Center. Labor room was dirty, lacked a baby corner and had no proper way to dispose off biological wastes or medical sharps.

Innovations:

- Yashoda Scheme: In collaboration with the Norwegian Indian Partnership Initiative, (NIPI) three districts have hired yashodas from the nearby villages to support the staff for the increased number of deliveries in the hospitals secondary to JSY (from 30% to 55% state wide.) These women provide basic information to new mothers about breast feeding, daily care of the child and deal with other questions of young mothers. They also keep an eye on postpartum women for any signs of complications and relieve nurses for other clinical work and ASHAs to go back to the villages for their other duties. They are paid Rs. 100 per woman who is present for an eight hour shift. We had a chance to meet them in district Dausa, where they are performing very well and are a great source of help for young mothers.

Emergency Ambulance Services: PPP with EMRI, Satyam Computers and Government of Rajasthan/NRHM: It is an emergency ambulance service with a toll free number, 108, which responds to medical, fire, and crime related emergencies 24X7. 95% of operation cost and all of capital expenditure is provided by NRHM (total of 500 million for the 4 phases) and 5% of operation cost and software is provided by EMRI. Final goal is to roll out 450 ambulances by year 2010-2011. Under the 1st phase 50 ambulances have been pressed into service in 7 districts. It has a response time of 25 minutes in urban areas and 40 minutes in rural areas. Call centers are staffed by three doctors and two police staff members at all times.

Dungarpur:

Dungarpur is mainly a tribal and rural district with over 95% of the 1.1 million living in the villages. The District Collector (DC) of Dungarpur has taken some significant steps to improve the healthcare in the district. This district has demonstrated remarkable improvement in IMR and MMR, which are now lower than the state average. IMR is down to 49 (state 65) and MMR is down to 281 (state 388). Following innovations have been possible in this one districts through the DC's initiative:

-Pregnancy tracking System: Using a software created by IL and FS, firm based in Delhi, with a live database at the level of the district, information is sent by ANMs at the SCs through cell phone text messaging as ASHAs report to them regarding pregnant women in their area. Their name, expected date of delivery, previous deliveries etc are recorded in this live database. This data is given to the blocks and then districts. It is finally monitored by DC's office. They have provided ANMs with cell phones. This makes it easy to track down

pregnant women as they get closer to the date of delivery. Also, they can be approached to make sure they deliver in a health facility. This software costs Rs. 5 million. This program can be expanded to tracking children after birth for immunizations and schooling and also married couples for family planning counseling etc. This was designed and implemented in the last year and Dungarpur has institutional deliveries up to 70%, significantly higher than majority of the country despite lack of human resources and infrastructure.

-Saas Bahu Sammelan: In order to target 30% of deliveries that are still occurring at home, this program is dedicated to educating women in the community, especially young married women and their mother-in-laws, who usually make decision about issues relating to pregnancy. These sessions are geared towards encouraging institutional delivery and awareness about breast feeding etc. Breast feeding, specially the first feed, which is the most important, is considered toxic in the tribal cultures. The Dungarpur Health department is trying to change that mind set through organized awareness efforts such as this. These sessions are organized by ICDS and funded by NRHM (Rs. 1000 per meeting.)

Kilkari Kits: Kits containing a set of gloves, soap, clean blade, soap and cotton given to ANMs while they are trained for 21 days as skilled birth attendants (SBA) at private centers in Udaipur. This is to make sure that even if delivery occurs at home, at least the SBAs have the basics to ensure a safe delivery.

-Training of Bopas (traditional healers): Sessions geared towards training traditional healers, who are trusted in the community, to convince pregnant women to deliver in the hospital and for young women to take their children to the hospital for vaccinations.

-Sagwara CHC: This is a result of PPP with the Bora community that has invested Rs. 40 million in re-constructing this CHC with state of the art equipment. They are contributing another Rs. 7.5 million (with another Rs. 7.5 million from NRHM) to expand JSY ward. This hospital also has cottage rooms, that are separate rooms for patients for additional cost of 150 rupees/day (these patients are not eligible for JSY benefits). Because these are private investors, they don't have to deal with tenders and can get quality work done without political hurdles. This is by far the best, in terms of infrastructure, cleanliness and quality, CHC we saw in the three states. Interestingly, the state Minister of Health had his mother admitted there while we were visiting. It takes Rs. 2.5 million to run this hospital including electricity, water, salaries for doctors even those that are not yet filled, and costs of medicines.

-Specialists on contract: DC and DPM have proposed to hire specialists on contract with NRHM funds. Given that it is a tribal district, they have serious shortage of MO and specially specialists. 50% of all MO posts are unfilled at DH and CHCs and about 90% positions for specialists are unfilled. Contract will give them Rs. 40,000 (given that starting pay for specialists in private sector is about Rs. 60,000-Rs. 80,000 for coming to CHC or DH for 2-3 set days for OPD).



Dausa District Hospital,
District Dausa, Rajasthan.
September 2008.
Yashoda working with a new
mother and her baby.
Yashodas are employed under
the Yashoda scheme, PPP with
NIPI, to provide support to new
mothers and to help nurses and
ASHAs with the increased
workload after JSY.



Sagwara CHC, District Dungarpur,
Rajasthan. September 2008
This hospital is built with a partnership
with the members of the local
community now settled abroad. There
were several sanitation workers in site
and hallways (left), wards and toilets
were spotless and well maintained even
with a high patient load.

Future steps:

Manpower:

-Medical and Para-medical staff: There needs to be special attention paid to this issue. Possible long term solutions require incentives to attract high quality of physicians, such as more competitive compensation, proper living facilities for those posted in rural areas, provisions for their children to attend schools in the nearby city etc. Also, increasing the number of government medical schools and nursing schools to train more staff. Recent graduates should be required to spend certain number of years in rural duty after graduation early on in their careers while they are more flexible in terms of where they can be similar to what is done in Haryana and Punjab. While more physicians and paramedical staff are trained, this situation can be tackled through hiring

physicians on contract with competitive compensation. In Durgapur, there is a plan to hire specialists for 2-3 days/week to see patients in outpatient clinics in rural areas for Rs. 40,000. Assam has hired physicians to work in their boat clinics to service its riverine islands for Rs. 35000/month. These physicians spend days on the boat, working on the island in the Bhrmaputra and sleeping on the boat. They have to be compensated appropriately in order to have proper participation. Clearly it doesn't work to hire a specialist for Rs. 1000/day while they spend Rs. 500 in one way transportation to the rural site, like it was tried in UP.

-Dais: We saw dais functioning as an integral part of the health system. They have been in the community for a long time and are widely trusted. Many of them are working full time at the SC and helping at the PHCs already assisting in deliveries. Many MO reported to us in UP and Rajasthan that a dai actually taught them a technique or two to safely undertake a tough delivery. Since they are already part of the community and helping ANMs and ASHAs in conducting safe deliveries, there should be an incentive built in for them so that we don't marginalize them and keep them in the system. In some remote districts like Jaisalmer and Barmer, dais were bringing most of the women for institutional delivery and then assisting at the center. In district Allahabad we saw there is a conflict of interest between ASHAs and dais to bring in a woman for delivery. In reality their work is complementary. ASHAs have the knowledge and the training, but dais have the technical skill and experience. If we can pay ASHA and Dai to together bring in a woman (while ASHA runs around getting the paperwork done, Dai can stay with the woman and assist with the delivery), we will better accomplish the goal of safe delivery and spreading awareness. Dais currently are being paid out of ANM's pocket (Rs. 150 or so a day) or by tips from the families of the pregnant woman. Even Rs. 100/per delivery would be highly acceptable to them, we were told.

ASHA:

ASHAs need to be empowered and strengthened in the community. Two modules of training have been accomplished in the all three states, although modules vary by state the content is essentially same as what has been designed by government of India. However, as per what we saw, ASHAs were lacking knowledge on their role in VHSC. They were unclear on how to get paid for the work that they were performing. JSY payments are straightforward, however, for other community work that a ASHA does, like motivating women or men for sterilization etc they need to be trained so as to know how to make sure they are paid the appropriate amount and on time. Also, there were a few places, like district Varanasi and district Durgapur, where we encountered ASHAs who were highly educated and were doing a great job. There needs to be a career track for such women, like support for ANM training, to keep them in the system and motivate them to continue to perform well. Another incentive structure for ASHA that we heard from the Health Minister of Assam, Dr. Himanta Sarma, was to increase incentive for ASHAs to Rs. 2000 for care of pregnant mothers from time of conception up until the last vaccination for the child. This will increase incentive for ASHAs by Rs. 1400, but would more importantly help ensure complete immunization for most children. This task would be made even more realistic with the implementation of Pregnancy Tracking System, as discussed above, which would not only make sure that all women deliver safely, but would also help monitor vaccination schedule of all children.

Communication between ASHAs, Anganwadi workers, ANMs and PRI are essential to success of this program. We are hopeful that as ASHAs become more aware of their role in VHSC and as VHSC becomes more active in these states, this communication gap will be filled. Kamrup district in Assam was the only place we saw this. It presented a great example of this communication model where ASHAs, Anganwadis and ANMs were constantly in touch. They met formally in meetings on Wednesday (health day) and on 1st Saturday of every month and also have significant informal communication about specific women they are taking care of who are common to each of the players.



I. ASHAs, ANMs, AWWs, and PRIs
Kamrup District, Assam



II. ANMs and Nurses in rural Assam.
Kamrup District, Assam

Infrastructure:

All the states that we visited were lacking in infrastructure to take care of the huge load of JSY patients. Although there are detailed facilities surveys that go into the details of requirements of each center as per Indian Public Health Standards and there are untied funds, RKS funds and maintenance grants, facilities are in a poor physical state. Infrastructure building needs to keep up with the demand to deliver quality care and medical supervisor needs to be encouraged to take initiative to use these funds as they see necessary for the betterment of their facilities. In order to accomplish this, funds should also be released on time, which was an issue in various places especially in MP. It may help if the CMO reviews the annual PIP with the all MOs to give an idea how to spend the money.

Communication and Management:

In places where we saw policies implemented appropriately, DCs were very heavily invested in accomplishing the goals of NRHM like in district Dungarpur in Rajasthan and district Jhansi in MP. This only speaks to the importance of good leadership and management in success of this program. Although DHS and VHSC were not active in every district yet, in order to make sure that the facilities were purchasing the equipment they needed, DC of Dungarpur would have meetings with the supervisors of each facility, go through their facility survey in detail and help them purchase the required equipment. This provides direction in utilization of funds and sets a good model for medical supervisors to take initiative wherever they see gaps in their facility.

Communication between NRHM staff and the permanent government medical staff is lacking in most places we visited. The problem was especially visible in district Jalaun in UP. It may be helpful for the Mission Director to clarify to everyone that they are all working towards the same goals and that the NRHM employees are also government employees.

Pregnancy Tracking System:

As discussed above, this innovation in Dungarpur can be very useful in all of the states that we visited and for that matter for all the 18 HFS of NRHM. This will not only keep a live database of all the pregnant women with all their vital information including expected date of delivery, which will help the staff on the ground follow up with these women. It can also eventually be extended to keep vaccination information of the children that are

born. Currently a similar system is functional in Tamil Nadu, it will be worth the effort to study the model further and how it is performing.

Some of the challenges related to NRHM that were recurrent in various field visits in Rajasthan, Uttar Pradesh, Madhya Pradesh and Orissa are elaborated below:

Management:

1. Integration of the new contractual staff with the previously existing health care administrative staff has not been accomplished. In Haryana, District Program Managers (DPMs) complained of lack of flexibility. Similarly, in Chittorgarh district, all of the Block Program Managers (BPMs) and the DPM reported that they lacked space to conduct their responsibilities. In district Azamgarh DPM, who is responsible for NRHM related projects in the district was not invited to the DHS meeting. Even though it is the Chief Medical Officer (CMO) and DPM who have to sign off on the checks related to NRHM together, it hasn't been implemented yet.
2. Doctors are too overburdened with non-clinical duties and the ones in administrative positions lack the training to actually do their job well. In Nimwara block, block medical officer, who formerly worked as a Medical Officer (MO) in the same block suggested how burdened the medical officers are with clinical, administrative, civil, financial and training duties. Their leading capacity is lacking and all the enthusiasm is beaten out of them by overload of work. Activities are added without enough support and without any incentives to perform well. Hence most of them get fed up of the system and have no desire to take initiative. Further, as per Nimwara block medical officer, no priorities are communicated and program implementation plan is not discussed at the block level.
3. Management of ASHA work and training has not been consistent in quality. In Uttar Pradesh, in Azamgarh district, a group of ASHAs that we spoke with had varying levels of knowledge about their job. Also staff nurses at the DH were frustrated with how ASHAs are unclear about the various forms that they need to fill out. JSY has created a nuisance for the hospital staff since ASHAs are often fighting with them to get their names on the deliveries even if they showed up after the delivery. We actually got to witness one such incident where the ASHA wanted to get the money for JSY even though she was late and didn't have any records that supported that she had accompanied the pregnant woman for ANC checks. No part of the training deals with the logistics of ASHA's duties, which creates more work for the hospital staff.
4. Orissa had been innovative with its management structure to meet the needs to the state. In Orissa, in addition to DPM and accountant, a DPU also consists of health info officer, District ASHA coordinator, works consultant (who looks over civil work since that state is undergoing massive construction work) and two assistants. This structure provides for better management of extensive NRHM schemes. Also computers are provided in 85% of CHC and PHCs with internet for better communication and data management. Orissa has also created a PPP model in areas where PHCs and SCs are not doing well and NGOs are more active. Facilities are given to these NGO to run the centers. 90% of resources are provided by the state and 10% by the NGO (Karuna trust). Orissa is also working with the Geographic Information System, live database where infrastructure, HR, location of health facilities are collected and updated every month and then correlated with maps. Urban Health GIS uses it to locate doctors in any city and also to list all the facilities in any particular institution (orissahealth.org.) Orissa also has been very active in making Village Health and Sanitation Committee (VHSC) functional. 91% of VHSC are operational and 72% have bank accounts. At GKS meeting in Kanpura village, Thandemunda village and Barasal village it was clear that ASHAs and ANMs are fully aware of their responsibilities and utilization of untied funds for SC, but VHSC funds are still underutilized.



III. VHSC meeting Kanpura Village (Kamakanagar Block) District Dhenkanal in Orissa February 2009: ASHA, ANM, PRI, Anganwadi and various villagers present at this meeting. Role of VHSC funds (Rs. 10,000 per village) is clear to all members of VHSC. See picture above.



IV. VHSC meeting at village Barasal Kankadahad block district Dhenkanal February 2008:
ASHAs in their uniform and very articulate: impressive knowledge about their job. SC ANM clear on utilization of funds, but GKS not clear on what do with their money, hence GKS money is untouched.

5. Utilization of Untied Funds and Management of Other Funds:

Untied funds are underutilized partly because of the culture and partly because of lack of training and clear instruction on how to utilize them. This is the first time that there are untied funds at each HF level to be utilized for anything that might be needed to improve the quality of service. The medical staff is not used to this and no one wants to take initiative to spend the money as they constantly worry that they will be questioned for expenditures. In addition, there is lack of communication from district level below regarding how to utilize these funds. For example, in Haryana, during the financial year 2007-08, Rs. 1.8 million out of Rs. 2 million of untied funds were unspent. In Budhakera SC, residential ANM wasn't aware of where and how to purchase the items she needs. Similarly, in Newal delivery hut, (SC given additional Rs. 100,000 to equip for institutional deliveries) ANM didn't know how to spend the money and wasn't sure who to ask. MO at the PHC under which Newal delivery hut fell, tried to maintain tight control over the money. DH Karnal and CHC Shahbad were very dark and dirty, while both the hospitals have plenty of funds. CHC Shahbad had 5 MOs and a complete medical staff; however, there is a lack of coordination of policies and funds because of lack of a real leader with a clear understanding of how best to use these funds. As a result, Rs. 250,000 are unspent because the doctors are too busy with clinical responsibilities to focus on planning expenditures for the hospital.



District Hospital Karnal, Haryana February 2008:

V. Labor room with rusted labor table and dirty linen. Although, majority of the untied funds are unspent.



VI. Disposable gloves reused multiple times. Even though there are plenty of funds available for supplies.

The other challenge is proper management and accountability of these funds. In district Chittorgarh, Nimwara block medical officer suggested that keeping track of all the funds is a huge task. For example, his block has 150 VHSC, which means Rs. 10,000 X150= Rs. 1.5 million that need to distributed just at a block level. If the system has to become truly decentralized, at the block level, accountants and manager are needed to make sure this amount is well utilized and the policies are implemented.

In some of the states, many districts are not receiving funds on time because of various reasons. In district Sagar in Madhya Pradesh, PHC Dhana's medical officer in charge reported to us that funds are not received on time and there is no instruction on how to utilize them appropriately. For the financial year 2008-09 funds were received in February and needed to be spent by March. E-banking is only up to district level in Madhya Pradesh. Accountant at CHC Rehali elaborated on delay of untied funds suggesting that they are received late because utilization certificates that need to be sent from the block to the state are all delayed. One of the MO at Azamgarh DH informed us that the untied funds are underutilized because RKS is not functional mainly because it is multi-departmental and everyone wants a cut from the funds to sign off to release the funds. For untied and annual maintenance funds as well, when utilization certificates (UCs) are submitted, they are asked for a percentage of the amount they have spent assuming that part of it must have been pocketed by the MO submitting the UC.



VII. CHC Rehali district Sagar, Madhya Pradesh February 2009
CHC labor room with old, rusted equipment even though untied funds are unspent.



VIII. New born corner in the labor room, unhygienic with old equipment.



IX. Maternity ward at CHC Rehali, dirty and beds without sheets and blankets.



X. CHC Garhokota, district Sagar, Madhya Pradesh February 2009
Maternity ward at the CHC with a pregnant woman on a bed without a mattress.

Management for funds other than untied funds has been problematic as well. Funds for other programs including JSY have been delayed. Payments for ASHAs and JSY beneficiaries from July 2008 until February 2009 were not made at CHC Rehali in district Sagar in MP. Similarly, at CHC Garhokota in MP, ASHAs had not been paid for the last seven months. In Uttar Pradesh, at CHC Sidholi in Sitapur district, we met with two ASHAs, one from village Patwa and another from village Bari. Both knew that they were supposed to be paid Rs. 600 at the time of delivery, but both had to pay the MO Rs. 200 in order to get their money. They were unaware of availability of funds for transportation of patients and they were taking one of their patients, who had been referred to DH for bleeding complications, on a rickshaw and then a bus to the DH.

At CHC Biswan in Sitapur, we met two ASHAs; one from Bhagipur who had facilitated 6 deliveries in 1.5 yrs and another from Manpur who had facilitated 64 deliveries in the same time period. One from Bhagipur explained that people don't want to deliver in the hospital because of the distance and because others from the village didn't get payment on time. Both of these ASHAs had not received payment for deliveries for the month of December and January and previously had to pay money to the MO to get their JSY payments. Medical officers in charge of these hospitals were away for a meeting, and no one else at these centers had any idea about untied funds or other NRHM related funds and how they are utilized. In Azamgarh district, at the DH, a group of ASHAs we spoke with informed us that each of them had to pay something to get their payments at the block level for deliveries. Out of the 15 ASHAs present there none had received any payment for works other than ID, sterilization and pulse polio. They also told us that patients do not receive payment on time at the block level and had to return as many as ten times before they could get their check.



XI. CHC Sidholi, District Sitapur, Uttar Pradesh February 2009

ASHAs at CHC who had accompanied their patients. All three ASHAs complained about having to pay Rs. 200 to get their payment for institutional deliveries.



XII. CHC Rehali, district Sagar, Madhya Pradesh, February 2009

Block accountant's records and paperwork, including the ones needed for utilization certificate submission.

Orissa has been able to deal with some of the issues mentioned above in the following way. It has established a system of e-backing all the way down to block level. As a result, utilization certificate are received on time and untied funds are sent electronically. There is block level training of SC ANMs for utilization of funds. PIP of the district is discussed with MO. As a result untied fund utilization is up to 60% in one year.

Human Resources:

In all the states we visited, hospitals are short on medical staff, especially physicians. They are paid significant less in the public sector compared to the private sector. Hence, a lot of posts go unfilled especially in the rural areas. Physicians, who do join, continue to have a private practice and are not always present at the hospital for their duties.

In Haryana, doctors are paid at the level of the 6th pay commission, with the base salary of Rs. 16,000 that adds up to about Rs. 40,000/month after all the allowances. Young physicians are required to spend two years in rural duty before applying for their post graduate positions. Prior to implementation of 6th pay commission, 42/67 positions were filled in Karnal districts. This ratio is expected to go up with the new pay scale. In Rajasthan, however, MOs are paid Rs. 16,000 of base salary and Rs. 4,000 of rural allowance. Even though 1700 rural medical officers were appointed, 150 resigned and 250 never joined because of the low salary and high workload.

ID in district Karnal in Haryana are up to 72% from 47%. Dais' are very active in the field. Until recently they were given Rs. 100 by Red Cross to bring deliveries to the center. (ASHAs are also given Rs. 100/ delivery.) Under the Jacha Baccha Scheme: ANMs are given incentive for ID; after three deliveries they are given Rs. 400 for female and Rs. 250 for delivering a male baby. MOs and staff nurses are also given incentives after three deliveries to discourage home deliveries. However, in Chittorgarh, ID is behind target. For the year 2008-09, there are only 17,000 performed towards the 29,000 deliveries (75% of all deliveries.) As per the DPM that is because of lack of commitment on part of the staff. There are no real incentives for ANM and MO to actually encourage ID especially when they are paid more by the families for delivering at home. Plus there is no career track built for paramedical staff to excel in accomplishing goals of NRHM.

In PHC Pahuna in district Chittorgarh, no MO was present. PHC Dindoli was locked when we visited. There had been only four deliveries conducted there in the last year. In Bhopal Sagar block CHC only five deliveries were conducted over the last year and has an OPD of 20/day. Physicians do not come to the hospital and when asked the block medical officer in charge, he explained that OPD is low because of low prevalence of disease in this block! Although BPM has been appointed and travels 100km one way for work, he has no real power. Out of Rs. 300,000, Rs. 200,000 is unspent. Amount that is spent, BMO and the doctor have negotiated deals with the vendors. However, CHC Rashmi was overcrowded and visibly high patient load with about 150 ID/month and OPD of 150/day. This was primarily because of presence of a surgeon at Rashmi was regularly present at the hospital.

Orissa has 4000 MO positions filled out of 8000 sanctioned. 1476 on contract physicians (mostly AYUSH) have been appointed. To encourage physicians to join the public sector, they are appointed at class one scale as opposed to junior scale. Instead of starting at 8K plus allowances, now they are at 15 K plus allowances with a total of Rs. 28,000 per month. Major issue is how spread out the community is especially in some of the deep tribal areas. Physicians are given another Rs. 5000 to work in tribal areas. Such areas like Kankadahad block where there is no water or electricity, poses significant challenges. Even though there is serious need of a health facility in this area, a health facility cannot run without a source of water and it is very hard for a physician to live in such an area. One of the MO appointed to this PHC described it as a "punishment post."

In district Azamgarh, ASHAs are bringing most of the deliveries to the DH instead of going the nearest CHC or PHC. Burden of normal deliveries for the DH has increased dramatically with almost 300 ID/mo. However, there is only one obstetrician who is managing gynecology OPD of 100/day, OR, training of students and staff etc. Labor room area and wards were of course very crowded. In this district, similar to other districts we visited in UP, about 30% of the ASHAs have been handpicked by the pradhans and end up being their relative. This causes problems in actually getting work done. VHSC are not active yet and pradhans demand ANM for money to sign off on anything for the SC. We had an opportunity to attend one of the ASHA training sessions in Azamgarh district hospital. Training was being held in a small room by one of the PHC MO. All the ASHAs had module II and about 50% were able to explain what they had learned in the first module. They all had been paid for the training period and had been provided with room and board for the period of training.



XIII. District Hospital Azamgarh, U.P. ASHA training session, February 2009

Infrastructure:

In most of the high focus states we visited, ID are going up significantly, but infrastructure building is lagging behind. Most of the SC buildings in Haryana and in Chittorgarh are running in rented buildings. DH of Karnal and Kurukshetra in Haryana were in abysmal conditions. Although newly constructed centers are coming up like Bhadson PHC in Haryana, such centers are rare.

CHC Rehali and Garhokota in district Sagar in MP were the most poorly maintained CHCs with maternity wards without mattresses and blankets, dogs roaming in the maternity wards, labor room with rusted equipment and very poorly lit. No gloves, no meds, no injections were available: one of the patients at CHC Garhokota reported that he was asked to go purchase these. Although untied funds had just been received at this CHC. MO in charge, who wasn't present when we arrived and was called later, didn't have much idea of what has been done with the funds. Either way, it was clear looking at the condition of the hospital that not much had been done and no one was really interested in infrastructure and quality of services of this hospital. In district Sitapur, in PHC Pahla, there were not enough beds for the patients, linen was very dirty and no sweepers had been hired through RKS. None of the medical officers were present, and the staff that was present was unaware of untied funds.

-CHC Gop in Orissa with OPD of 200/day and ID of 150/month had a very poorly maintained labor room with water leaking and no electrical fittings. Wards were dirty without mattresses on the beds. This was surprising since untied funds were unused and training for utilization of untied funds had already been done. DPM informed us that the block medical officer does not like to get the DPU or the BPU involved helping with utilization of untied funds and he himself lacks the motivation to do so on his own. Cleaning and security has

been outsourced for Rs. 29,000 /mo for cleaning with 12 sweepers and Rs. 27,000/mo for security with 15 guards in some of the centers. Results have been remarkable; however, it is limited to DH and FRUs so far. Orissa is undertaking a lot of construction work related to NRHM, hopefully a lot of the gaps related to physical infrastructure will be filled as hospital building are renovated and SC are constructed, with running water and source of power.



XIV. CHC Garhokota, district Sagar, Madhya Pradesh, February 2009 - Maternity ward beds without mattresses and no doctor available at the CHC, which is a 24X7 facility.



XV. Bathrooms were very dirty and dogs were roaming the facility including the maternity wards.

Chapter VIII Reducing Under-5 Mortality

India is committed to achieving the MDG 4 goal of reducing under-5 child mortality by 2/3rd by the year 2015. Among the 2 million children under-5 who die each year in India, 45% occur in the neonatal period. In addition, pneumonia causes 370,000 deaths and diarrhea causes an additional 410,000 deaths (India UNICEF State of the World Children 2009, WHO- World Health Statistics, Global health indicators 2008). Together, neonatal, pneumonia and diarrheal deaths account for approximately 84% of all under-5 deaths in India. A number of strategies are currently available to prevent each of these causes of death. In order to be effective, many of these strategies need to be initiated at the community level. The ASHA worker could play a pivotal role in ensuring the successful implementation of these strategies. The potential strategies in which the ASHA workers could play an important role for management of diarrhea, pneumonia and neonatal illnesses are discussed below:

Diarrhea:

Since the late 1970's, oral rehydration therapy (ORT) has been the cornerstone of the successful treatment of diarrhea. This simple therapy has been credited with saving millions of lives in the past 4 decades. In an editorial in the Lancet, ORT was hailed to be the most important discovery of the past century (Lancet 1978; 2(8084):300-1). In 1980, there were 5 million deaths each year from diarrhea worldwide. Despite significant reduction, diarrhea continues to account for approximately 2 million deaths each year. Most of these lives can be saved if ORS can be administered as soon as diarrhea begins. According to the recent NFHS survey, 58% of children with diarrhea were taken to a health facility but only 26% of the children received ORS (NFHS-3, 2005-06). The ASHA worker can play a major role in various aspects of the management of diarrhea including; educating the mothers about the importance of initiating ORS as soon as possible, its proper use, and in providing ORS packets. Since the ASHA worker lives in the community, she can dispense ORS as soon as diarrhea begins.

In addition to causing death, repeated bouts of diarrhea can adversely affect the nutritional status of children. A study following infants in a slum in Vellore found that infants suffer from 1 to 5 bouts of gastrointestinal illness a year (Arch Dis Child. 2008 Jun; 93(6):479-84). Unfortunately, there is a traditional belief that food should be withheld from children when diarrhea occurs. Sadly, this belief is reinforced by many medical care givers. Withholding food to an infant with diarrhea can aggravate the malnutrition-infection cycle and put the infant at increased risk for subsequent diarrheal episodes and other common childhood illnesses. ASHA workers could play an important role in educating the mothers about appropriate feeding during diarrheal episodes. ASHA workers should also be trained to look for signs of dysentery and refer the children immediately for appropriate antibiotic therapy. Similarly, ASHA workers should be trained to assess dehydration so that children with dehydration are also referred for appropriate therapy. In the 1980's WHO organized one week workshops all over the world for training Community Health Workers specifically on the management of diarrhea. It is probably not practical to provide a one week workshop specifically on diarrhea for all ASHA workers. However, it is important that specific time (one to two days) is allocated for specific training on the management of diarrhea. When possible, this training should include direct observation of the management of dehydrated children.

In addition to ORS, the use of zinc supplementation for 2 weeks with each episode of diarrhea has been shown to reduce diarrheal mortality by 50% in a study in Bangladesh (BMJ. 2002 Nov 9;325(7372):1059). Both WHO and UNICEF now recommend the use of Zn supplementation with each diarrheal episode. In most of the poor countries of the world the available infrastructure is not adequate to have an effective distribution system for Zn supplementation. The NRHM is in a unique position to implement this strategy since there is a very effective distribution system through the ASHA workers.

Pneumonia:

The major strategies available for the prevention of pneumonia are 1) vaccines 2) appropriate nutrition including breast feeding and 3) Reduction of indoor air pollution. The main strategy available for treatment of pneumonia is appropriate case management in the community and at medical facilities. The ASHA worker can play an important role in increasing compliance with several of these strategies.

Prevention of pneumonia:

a) Current coverage with measles and pertussis vaccines in some of the states with the highest mortality are as low as 27% and 29% respectively (NFHS-3 2005-06). Both these vaccines have been shown to reduce rates of pneumonia. In addition measles vaccine has been shown to reduce both measles specific mortality, diarrheal diseases, and all cause mortality. The ASHA workers could be instrumental in motivating and facilitating the families to go to immunization clinics. India has already made a decision to introduce *H. influenzae* type b (Hib) vaccine as a combination product containing the diphtheria, pertussis, tetanus and Hepatitis B antigens. The widespread use of the latter product should further reduce the rates of pneumonia and mortality. The ASHA workers can be very helpful in educating the parents about the importance of immunizing infants against Hib disease.

b) The ASHA worker can play an important role in promoting breast feeding. Only 46% of infants are exclusively breastfed in their first 5 month of life (NFHS-3, 2005-06). In Asia, 45% of ALRI deaths in neonates and 19% of ALRI deaths in older children can be attributed to suboptimal breastfeeding practices (Bull World Health Organ. 2008 May;86(5):356-64). Several states in India also have specific nutrition supplementation programs. The ASHA workers should be trained on all the resources available for nutritional supplementation and make appropriate referrals

Treatment of pneumonia:

For over two decades, WHO has recommended community based identification and treatment of pneumonia along with appropriate referral of children with severe pneumonia. Community based strategies have been very successful when implemented effectively. One such intervention, evaluated by Bang et al in rural Maharashtra, reduced the mortality rate due to pneumonia by 54% in children under 4 years of age (Lancet. 1990 Jul 28; 336(8709):201-6). According to the NFHS 06 data, 69% of children with ALRI seek care at a facility but only 12% receive antibiotics. If the ASHA worker is appropriately trained, she can play an important role in identifying children with ALRI symptoms and treat them or refer them for care as appropriate.

Neonatal Health:

Like many other developing countries, the major causes of neonatal death in India are; sepsis, asphyxia and prematurity. In the past decade we and others have demonstrated that community based management of sepsis can reduce neonatal mortality by 30 to 50%. Globally neonatal sepsis accounts for 27% of the neonatal mortality. In countries with high neonatal mortality, up to 50% of neonatal mortality can be caused by sepsis (Knippenberg, Lawn et al. 2005). In a recent study in Uttar Pradesh, we found that 47% of the neonatal mortality was caused by sepsis (Baqui, Darmstadt et al. 2006).

Several community based trials have used community health workers to educate mothers about safe delivery, birth preparedness, recognition of danger signs of sepsis, referral for treatment of sepsis and antibiotic treatment of sepsis at home for those who refuse referral. The study by Bang et al mentioned previously also demonstrated a reduction in neonatal mortality of 48% by using CHW's to diagnose sepsis and treat with intramuscular antibiotics in the community. Another study by Kumar et al demonstrated that a set of behavioral interventions along with appropriate referrals performed by CHWs can reduce neonatal mortality by 54% (Lancet. 2008 Sep 27; 372(9644):1151-62). In a recent study in rural Bangladesh, Baqui et al trained CHW's to

identify signs of sepsis and make appropriate referrals for treatment (Lancet. 2008 Jun 7; 371(9628):1936-44). The study demonstrated 34% reduction in overall neonatal mortality in the intervention arm compared to the comparison arm. Neonates whose parents refused referrals were treated with a 7 day course of intramuscular antibiotics. The CHW treatment was associated with a case fatality rate comparable to facility based care (Baqui et al, PIDJ, in press).

If properly trained, the ASHA worker can play a major role in teaching mothers and families about various aspects of the management of delivery and care of newborn. Since India has a very active program for hospital based delivery which is facilitated by strong monetary incentives for mothers to deliver at a facility, the ASHA worker can play a pivotal role in the referral. However, there will still be a substantial proportion of mothers who deliver at home particularly in states with the highest infant mortality. The ASHA worker, if properly trained can provide advice, training and referral to the mother in various aspects of birth preparedness, clean delivery, warming the baby, immediate breast feeding, clean cord cutting, delaying bathing etc. The ASHA worker can also be trained to recognize danger signs of sepsis and institute prompt referral. Since the steps involved in ensuring safe delivery and appropriate newborn care is complex, the NRHM may want to consider training a cadre of ASHA workers who receive specialized training in neonatal health.

Chapter IX Non Communicable Diseases

Cardiovascular disease is the leading cause of death in India. The epidemic of diabetes that has already begun in India has the potential to unravel the spectacular economic and social progress that has been achieved in recent decades. At least 30 million, perhaps even 70 million, Indian citizens have diabetes. The trends in dietary and activity patterns, seen in the increasing prevalence of overweight and obesity, will inevitably drive this number much higher. It is possible that prevalence of diabetes could become as high as half of the adult population. Although the exact genetic variants have not been identified, the evidence is clear that populations from South, East, and Southeast Asia have a heightened susceptibility to diabetes when combined with unhealthy diets, low levels of physical activity, and smoking. In other words, those factors that lead to high rates of diabetes in European populations will lead to several-fold higher rates in Asian populations.

The degree of susceptibility that exists in the Indian population is not clear, but by any measure diabetes is set to become a devastating epidemic in India unless steps are taken to abate the causes. The underlying factors that make the urban prevalence so high are spreading to rural areas and our colleagues are noting the recent emergence of diabetes in some of those populations as well.¹⁴

The reduction of cardiovascular disease, diabetes and most other chronic diseases is possible, but will require actions by the highest level of government and Indian society broadly, in addition to the health care system and Ministry of Health.

The morbidity and economic impacts of diabetes are mainly due to the many complications of this condition, including heart disease, stroke, kidney failure, blindness, and loss of limbs. These consequences have not yet been fully felt in India. The rise in diabetes has been quite recent and the complication rates rise directly with the duration of diabetes. For example, we have found that rates of fatal heart attacks are 3-fold higher among persons with diabetes for less than five years but 12-fold among those with diabetes for 25 or more years.¹⁵

Even if the epidemic in India were arrested today, there would still be a huge increase in the complications over the next several decades. If the rates of diabetes increase further, there will be no health care system capable of caring for the complications and the disease and economic burden to society will be overwhelming. Attention to prevention will thus have major benefits. Further, the underlying causes of diabetes overlap greatly with those of cardiovascular disease and many cancers so the benefits will be very broad.

We know that the health of individuals is intricately woven into the complex fabric of society. We have evidence of this in Dr. Ramadoss' work with the WHO Commission on Macroeconomics and Health. For example, the state of agriculture, natural resources, education, transportation, and fiscal policies each strongly determine health, and the health status of individuals strongly influences many of these domains. Highlighted below are some key areas where the Ministry of Health plays an important role, and where the leadership of the Minister of Health, coupled with the action of other Ministries can have strongly beneficial effects on the epidemic of chronic disease.

1. **Increasing taxes on cigarette smoking and banning smoking in public buildings.**
We all know smoking has devastating effects on health. We applaud the signature of India to the WHO Framework Convention on Tobacco Control and many positive steps have been taken. Complete implementation will have enormous benefits. Educational and other efforts are underway, but

¹⁴ Chow CK et al. *Diabetes Care*. 2006 Jul; 29(7):1717-8

¹⁵ Hu FB et al. *Arch Intern Med*. 2001 Jul; 161(14):1717-1723

increasing cost through taxation on tobacco products and the protection of nonsmokers from second hand smoke are powerful elements in an effective control effort.

2. **Promoting physical activity by including safe paths for walking and riding bicycles into transportation planning and urban design.**

Like smoking, physical inactivity has deleterious effects on virtually every organ of the body, and the emphasis on automobiles for transportation has a particularly adverse effect on physical activity patterns of populations (and of course large adverse effects on pollution and global warming).

In a recent World Bank/Fogarty Institute review on priorities for disease prevention in developing countries,¹⁶ we concluded that promotion of walking, bicycle riding, and public transport systems are among the highest priorities.

The development of safe and attractive routes for walking and bicycle riding by school children and adults of all ages stands out as an appealing and feasible proposal. While expressways have an established place in modern development, parallel development of inexpensive infrastructure for bicycles and pedestrians, mandated by government, would promote safe cycling. The provision of regular physical activity by schools and educational efforts regarding physical activity by the Ministry of Health are important and laudable. A shift in national transportation and urban design policies to favor energy expenditure in getting about is an essential supplement in promoting an active population. Public transportation, such as that being developed in Delhi, also plays an important part in a balanced and health promoting transportation system, especially if stations are connected with safe bicycle and pedestrian routes. There are many other creative possibilities to promote walking, public transportation, and bicycle use, including economic incentives and disincentives.

3. **Banning partially hydrogenated fats and limitations on promotion of sugar-sweetened beverages.**

The promotion of healthy food choices requires efforts at all levels of government. However, we highlight banning of partially hydrogenated fats because this industrial process creates trans fats that are clearly related to heart disease and probably diabetes, and the amount commonly present in the vegetable ghee in India is the highest (about 50%) that we have seen anywhere.

A ban on trans fats has been enacted in Denmark, Brazil, Chile, New York City, and many other parts of the U.S. (in New York City it is a ban on restaurant use of trans fat), with the provision of adequate time for conversion to alternatives. The choice of replacement oils can provide an opportunity to increase intake of essential omega-3 fatty acids, which are very low in many Indian diets. We note that mustard oil, a traditional oil in parts of India, is a particularly good source of omega-3 fatty acids, and regular use of mustard oil has been associated with particularly low risk of heart disease in a study in Delhi and Bangalore.

We also specifically mention restrictions on the promotion of soda and other sugar-sweetened beverages because these contribute directly to obesity and diabetes, and promoting their use, especially to children, should be stopped in the midst of an epidemic of diabetes. We are aware that such a restriction has been proposed by the Ministry of Health, but according to the press is being resisted by other Ministries, with the rationale that this would result in loss of income. This does not take into account the huge costs of treating diabetes and its resulting disabilities. Also, beverage companies elsewhere are profiting from selling water and other sugar-free beverages as alternatives.

¹⁶ Jamison D et al, eds. 2006. *Disease Control Priorities for Developing Countries*. Washington DC: The World Bank and Oxford University Press.

4. **Launching a national campaign to promote intake of whole grains and reduction on refined grains and sugar**
The high intake of refined grains and sugar should be reduced in India because of the rising rates of diabetes. Many traditional Indian foods are based on whole grains, but these are rapidly being replaced by refined grains. This is a complicated issue because refined grains are often associated in people's minds with progress and wealth. A sustained campaign needs to be supported by setting good examples; for example all government events, including the most important state banquets, could serve only whole grains. Economic incentives and taxes could also be used to promote whole grain consumption.

5. **Creating a national policy to fortify grains with folic acid and vitamin B-12**
There is now clear evidence that increasing folic acid intakes will reduce risk of stroke¹⁷ and also severe birth defects related to the central nervous system. This issue is complex, but folic acid and vitamin B-12 deficiency are likely to be widespread in India. A national commission to guide policy would be a good first step, and an important immediate function would be to develop data on the prevalence of deficiency. Subsistence farmers would not be reached by a fortification policy, and this needs special consideration as part of an overall strategy.

6. **Developing a strategy for management of hypertension in poor urban and rural communities**
Reduction of blood pressure will reduce the risk of cardiovascular disease, especially stroke. Collection of regional surveillance data on prevalence and treatment of hypertension, and on salt and potassium intake, should be a high priority and would not be expensive. A standing commission to develop and evaluate standard, low-cost protocols for management of hypertension in poor communities would help. Particular attention should be given to diet and other nonpharmacologic approaches which have other benefits, as well as to inexpensive and effective drugs.

It is important to note here the very encouraging results of the McMaster University trial led by Dr Salim Yusuf of a polypill with a combination of ingredients to address several cardiovascular risk factors in the one tablet, including high blood pressure and high cholesterol. The possible widespread benefit of a cheap, widely available preventive pill is of potentially great interest to the Indian Health Ministry and the Indian population, especially in rural areas where access to specialist medical services is more restricted.

7. **Tackling alcohol abuse**
Recognition of this issue as an increasing problem with multiple effects suggests the value of a standing commission with representation from several Ministries. Efforts worldwide attempt to achieve reductions in alcohol abuse through education, social awareness, legal restrictions on access, and financial cost through taxation and penalties. Specific Indian research may recommend the approaches most likely to succeed in this varied population.

In the February 2008 meeting, the IAP recommended that the Prime Minister chair an Inter-ministerial Group on India's nutrition challenges—sub-populations with chronic under-nourishment as well as the rapid rise of disease from obesity, diabetes, and the “urban/industrial lifestyle”. This Inter-ministerial Group is crucial in progressing on the above recommendations since clearly several different governmental ministries play a significant role in dealing with India's nutrition challenges. The Group would include ministries involved in public health and family welfare (Ministry of Health & Family Welfare); urbanization (Ministry of Urban Development); nutrition (Ministry of Women and Child Development); rural development (Ministry of Rural Development); transport (Ministry of Roads, Transport and Highways) and the food sector (Ministry of

¹⁷ Wang X, Qin X, Demirtas H, Li J, Mao G, Huo Y, Sun N, Liu L, Xu X. Efficacy of folic acid supplementation in stroke prevention: a meta-analysis. *Lancet*. 2007 Jun 2; 369 (9576):1876-82. Review. PubMed PMID: 17544768.

Agriculture) to give a widely-based approach to the multiple challenges facing India in achieving healthy nutrition.

We are aware that implementation of the above actions is politically complicated and has many economic implications. However, we are certain that with known modifications to diet and lifestyle, diabetes and heart disease can be significantly reduced, and many cancers prevented, while also enhancing the quality of life for India's people.

Malaria in India

Malaria has been a major health problem in India for centuries and has had an interesting epidemiological profile during the last eighty years.

During the 1930's, the annual incidence of malaria was as high as 75 million cases with an estimated 800,000 deaths. "There was no aspect of life in the country that was not affected by malaria". The annual economic loss at the time due to malaria was estimated as RS.10,000 million. As a result of such significant health and economic burden, the Indian government had launched a National Malaria Control Program in 1953 and within five years, the program interventions were able to bring down the incidence of malaria to two million cases. Following the initial success, the government started a campaign of National Malaria Eradication Program in 1958 which was based on total coverage by the application of indoor residual spraying with DDT and an extensive and intensive surveillance system based on the WHO Malaria Eradication Guides and Protocols. The eradication program was very effective such that by 1965, the incidence of malaria dropped significantly to a mere 50,000 cases per year: However, the success of the eradication effort was not sustained due to shortage of DDT, vector resistant and operational & technical problems. By 1970, the number of malaria cases started to rise up to the pre-eradication level and a total of 6.5 million cases were recorded in 1976. To address the resurgence of malaria, a number of operational plans were introduced and since 1984 to date, the number of malaria cases is reduced to the two million level and an estimated 1000 deaths per year.

At present, the National Vector-Borne disease control program (NVBDCP) is responsible for the control of malaria, lymphatic filariasis, Kala-azar, dengue, Japanese Encephalitis and chikungunya, which are the major public health concerns of the country. The NVBDCP directorate is decentralized and has the necessary guidelines for the prevention and management of malaria and the other five diseases.

Malaria Control

1. There is a network of peripheral malaria workers at all levels that provide appropriate prevention and case management.
2. At Community level, the accredited social Health Activists are empowered to distribute insecticide treated nets, use Rapid Diagnostics Tests (RDTs) for the diagnosis of malaria and treatment of cases with artemisinin-based combination Therapy (ACT) antimalarias.
3. NVBDCP has a strategic plan for the implementation of package of interventions following the Roll Back Malaria Global Strategy. The interventions include indoor residual spraying (IRS), long lasting insecticidal nets (LLINs), rapid diagnostic kits for malaria diagnosis, case management with ACTs.
4. For treatment of plasmodium vivax, a 14-day regime of primaquine is used.
5. The NVBDCP gets technical support from the National Institute of Malaria Research (NIMR) relating to issues of anti-malarial drug and insecticides effectiveness monitoring. It also receives scientific support from the Indian Council of Medical Research (ICMR) on the formulation of evidence-based policies.

6. The surveillance system is based on the collection of blood smears from 10% of the population in all areas irrespective of endemicity. The system is referred to as annual blood examination rate (ABER) and the slides are collected by active case detection (ACD) and passive case detection (PCD). Thus about 90-100 million blood smears are collected every year in order to determine the prevalence of malaria. What is more, the information collected by ACD and PCD are not analyzed separately.

Recommendation

1. The current policy of surveillance is based on PCD and ACD with a target of 10% ABER. It is recommended to update the surveillance system to be based on PCD alone. This would be cost effective as the PCD data would be generated from routine surveillance. Active Case Detection would be useful for epidemic detection or in those areas with poor access to PCD.
2. There is a steady increase in the distribution of LLINs (Long Lasting Insecticidal Nets) but has not reached a level of universal coverage. Only 15 million nets had been distributed by 2006. Every attempt should be undertaken to increase the coverage to at least 80% level.
3. It will be critical to support the ASHAs to provide community-based malaria control interventions. They should receive regular technical support and supervision.
4. The system of quality control on diagnostics through microscopes/RDTs needs to be strengthened.
5. Despite that the annual incidence of malaria has stabilized at two million cases and a death rate of 1000 which seems to be under reported. Plasmodium falciparum with a proportion of 45% is still high. Every effort should be made for the population to have ready access to diagnostics (microscopy or RDT) and ACTs, including empowering ASHAs to use RDTs to diagnose and either refer and or treat malaria.

Recent Data on IMR and MMR in the post NRHM Period:

According to the latest figures released by the Registrar General of India (RGI) in May, 2009, as per the Sample Registration System, the infant mortality rate in India went down from 57 to 55 per 1,000 live births between 2006 and 2007. While the overall figure has shown a decline, the number has gone up in Chandigarh, Uttarakhand, the Andaman and Nicobar Islands and some northeastern States.

The IMR has gone up from 23 to 27 per 1,000 live births in Chandigarh and from 31 to 34 in the Andaman and Nicobar Islands. In Uttarakhand, the number of children dying per 1,000 live births has gone up from 43 to 48, in Manipur from 11 to 12 and in Meghalaya from 53 to 56. Similarly, the IMR figure has shown an upward trend in Nagaland to 21 from 20 in the previous survey, from 33 to 34 in Sikkim, and from 36 to 39 in Tripura.

Strangely, while Manipur had an IMR of 11, both in rural and urban areas, the latest statistics show that the figure has gone up to 13 in rural areas and fallen to nine in urban areas. However, it continues to have the lowest IMR followed by Kerala at 13.

The worst performers, despite an improvement, continue to be Madhya Pradesh at 72 followed by Orissa at 71, Uttar Pradesh at 69, Assam at 66 and Rajasthan at 65. The other States whose performance is not satisfactory are Chhattisgarh (59), Bihar (58), Haryana (55), Gujarat (52) and Jammu and Kashmir (51).

The rural-urban divide is also visible in the data. The IMR in rural India is 61, while it is 37 in urban areas.

Focus on Reducing Neo-natal mortality

The neonatal mortality rate (NMR)¹⁸ for India was estimated to be 39 (NFHS-3 of 2005/06) and singularly contributes to about 25 percent of the total newborn deaths in India. This implies that nearly two-thirds of all infant deaths and about half of all under-five childhood deaths occur in the neo-natal period. Hence focusing on prevention of neo-natal deaths can go a long way in reducing child mortality. Neonatal deaths (deaths among live births during the first 28 completed days of life) may be subdivided into early neonatal deaths, occurring during the first seven days of life, and late neonatal deaths, occurring after the seventh day, but before 28 completed days of life (WHO, 2001).

The early neo-natal mortality rate (ENMR) in India was about 32 per 1,000 live births. This means that approximately three-fourths of neonatal deaths, half of infant deaths and one-third of under-five child deaths occur within the first seven days of life. One must also note that the reported figures on early neo-natal deaths may be lower than actual numbers as parents are reluctant to reveal the birth and subsequent death of their babies given that there is such a high death rate of newborn infants. In many communities a child is not assigned a name till he or she has survived a few days or even weeks to avoid the embarrassment and guilt in the event of death.

Neo-natal deaths are caused by neo-natal tetanus (NNT), neo-natal sepsis (NNS), including septicemia and pneumonia, birth asphyxia and premature birth (State of India's Newborns, 2004). Some of these causes of neo-natal deaths can be dealt with large scale maternal tetanus toxoid immunization programs, increase in institutional delivery and skilled attendance and indirect benefits through birth spacing¹⁹.

NFHS II reported the mean age at first birth among 25-29 year old women as 19.6 years. NMR in mothers under 20 years of age at delivery (63 per 1,000 live births) was almost one-and-a-half times that of mothers who were 20-29

18 The neonatal period commences at birth and ends 28 completed days after birth. Neonatal mortality rate (NMR): Number of deaths among live births during the first 28 completed days of life per 1,000 live births. (Office of Population Censuses and Surveys (OPCS) (1991) <http://www.euro.who.int/document/e68459.pdf>

19 NFHS II data shows that NMR was 50 percent less if the birth interval was 2-4 yrs compared to that if the interval was less than two yrs (36 and 71).

years old (41 per 1,000 live births). The mean age of marriage in most districts of Uttar Pradesh for instance is around 16 (Mohan, 2004) and mean age at first birth is likely to be less than the national average increasing the risk of neonatal mortality.

According to the DLHS-3 data for 2007/08, there appears to be significant increase in several critical indicators relative to what these were in DLHS-2 in 2002/04. For instance, rural institutional deliveries went up from 29.8% in 2002/04 to 37.8% in 2007/08; rural children 12-23 months fully immunized went up from 40% to 50.6%; mothers who consumed 100 IFA tablets went up rapidly from 16.9% to 47.4%; PHCs providing 24X7 services (53.1%), PHCs conducting at least 10 deliveries in a month (38.5%), breastfeeding within one hour of birth for rural infants went up from 25.1% to 39.4%; presence of 2nd ANM in sub centers (19.8%); setting up of Village Health and Sanitation Committees (29.2%); presence of ASHAs in 12,678 villages, and JSY beneficiaries (13.9%). On the other hand, rural mothers who received full antenatal check-up rose merely from 12.8% to 14.9%. It is surprising to note that DLHS-3 reports lower percentage of mothers whose blood pressure was measured relative to DLHS-2 – fell significantly from 50.2% to 37.2%. This is all the more surprising since pregnancy induced hypertension is one of the key issues in rural India.

Similarly, the RGI's office has released the MMR data for the period 2004-06. MMR is down to 254 from 301 in 2001-03. States like West Bengal, Andhra Pradesh and Tamil Nadu have reported the highest percentage decline. The performance of Bihar, Orissa, Rajasthan, UP and MP is also significant. The results from Punjab and Haryana however are disappointing as they actually show an increase in MMR during this period.

Chapter X Concluding Remarks and Recommendations for Improvements:

Since the launch of the National Rural Health Mission (NRHM) on April 12, 2005 by Dr. Manmohan Singh, Prime Minister of India, undoubtedly, the Mission has achieved a great deal, especially in the areas of putting in place an ASHA for every 1000 population; creating greater awareness about ante-natal care, institutional delivery, post-natal care and child immunization; raising institutional deliveries; raising the number of out-patients being provided with healthcare services in the health facilities; provision of un-tied funds at all levels of facilities and providing the much needed flexibility for outreach of services and so on. These are all very commendable achievements. However, the scale of the challenge that remains is immense, but so too, we believe is India's capacity.

It is for the first time in post independent India that a rural public health program as ambitious as NRHM has been put in place to address real issues on the ground with real resources, both financial and human, though there is much more needed on both the fronts as our study argues. Obviously, a rural public health system that has been largely dysfunctional for the most part especially in the northern and eastern parts of the country all these decades cannot be expected to begin delivering results in a short span of 3-4 years with the infusion of some additional funds and some new strategies and interventions. Be that as it may, we do think from what we have seen across many states – in Uttar Pradesh, Madhya Pradesh, Rajasthan, Assam, Andhra Pradesh, Karnataka and Tamil Nadu and our empirical analysis of the primary and secondary data in this report that NRHM has surely begun to make a difference.

Put briefly, we think what the NRHM has been able to accomplish in a relatively short period of time is to create a much higher level of demand for public health services from the ground up. This in turn, we believe will force the systems and processes to function better in order to meet this surging demand. Our overall assessment is that should the central and more importantly state governments undertake the necessary corrective measures (which we have attempted to explain and highlight throughout this report) during the next 4-5 years, there is a real possibility of witnessing some far-reaching results, such as in the reduction of infant, under-5 and maternal mortality rates; much higher immunization rates; and sizeable reductions in out-of-pocket expenses for healthcare services for India's hundreds of millions of poor rural residents.

We believe that the following seven broad issues are critical if the NRHM has to succeed on scale: 1) a much higher level of public health spending in general and much higher outlays for NRHM in particular; 2) proper recruitment, comprehensive training, effective control and oversight and timely and adequate payments for the ASHAs; 3) an effective and efficient management structure for the health facilities at the village, block and district levels; 4) a well-defined and implementable role of the Panchayat Raj Institutions (PRIs) and a comprehensive and on-going training program for the panchayat members; 5) commensurate physical infrastructure and human resources in the sub-centers and the Primary Health Centers with the growing needs of the regions; 6) scaling up necessary interventions to bring down the infant mortality rate (IMR) (focusing on neo-natal mortality in particular) and maternal mortality rate (MMR); and 7) NRHM to work hand-in-hand with the Aanganwadi workers of the Integrated Child Development Scheme.

The health conditions, of course, cannot be studied in isolation. The shortfalls in health, education, and population control among others are all mutually interactive. Illiterate mothers are much more likely than literate mothers to suffer the deaths of young children due to disease, since literate mothers are more effective at care giving and at seeking out medical help in emergencies. High infant mortality rates promote high fertility rates, since households have many children to compensate for the risks of childhood deaths. High fertility rates, in turn, promote a social bias against educating young girls, since parents lack the resources to provide a quality education for all of their children, and therefore invest scarce resources in boys, for whom the perceived market returns to investment are higher.

Specific recommendations

The following is a list of 24 specific recommendations that follow from our extensive site visits and consultations with stake holders including the Ministry of Health and health officials at state and local levels.

I. For Immediate Action

Management and Co-ordination between the Center and States:

1. NRHM should hold the states accountable for results. In this regard, Memorandums of Understanding (MoUs) between the state governments and the central government should be signed without any delay. This will bind the states and the NRHM progress could be better monitored particularly through the benchmarking of performance given in the MoUs. Also, while the funding of inputs is certainly needed, but the Mission may be more effective if it were to pay for outputs.
2. We suggest a health sector strategy for India that is Millennium Development Goals (MDG) based not only at the national level, but also more importantly at the state and district levels. States and districts should strive hard to attain the MDGs, such as reducing infant mortality rate, under-5 mortality, maternal mortality rate, immunizations and access to safe drinking water and the like especially for the laggard states and districts, with particular focus on the 150 most backward districts of the country. Based on the MDGs, state governments should announce targets for health to be met at the state and district levels by the year 2015.
3. We suggest that the central government should plan to convene a meeting of Chief Ministers and Health Ministers of all Indian States in 2010 to discuss how the states will meet the health targets. This meeting will allow states to present their most successful initiatives, so that all states can adopt “best practices” in public health.
4. We recommend that the Prime Minister chair an Inter-ministerial Group on India's nutrition challenges—sub-populations with chronic under-nourishment as well as the rapid rise of disease from obesity, diabetes, and the “urban/industrial lifestyle”. This Inter-ministerial Group is crucial since clearly several different governmental ministries play a significant role in dealing with India’s nutrition challenges. The Group would include ministries involved in public health and family welfare (Ministry of Health & Family Welfare); urbanization (Ministry of Urban Development); nutrition (Ministry of Women and Child Development); rural development (Ministry of Rural Development); transport (Ministry of Roads, Transport and Highways) and the food sector (Ministry of Agriculture) to give a widely-based approach to the multiple challenges facing India in achieving healthy nutrition.

ASHAs Incentives:

5. ASHAs should be paid a regular salary in the range of Rs. 1,000 to 1,500 per month plus incentives. The incentive amounts being paid currently are too meager.
6. Untimely payment of incentives to ASHAs is serving as a huge disincentive for taking on the role that is expected of them. The presently followed system of paying the ASHAs is a lengthy process which is not only cumbersome, but very poorly implemented as well. The result, almost all the ASHAs we spoke to received their payments after months. A much simpler and straight forward system needs to be put in place for paying the ASHAs so that they are paid EVERY month. Likewise in the National Rural Employment Guarantee Program, ASHA payments should also be electronically wired into their bank accounts.

Utilization of Flexi Funds:

7. During all our field visits, we found that un-tied funds were not being utilized, especially at the PHC and the Community Health Center (CHC) levels. ANMs at most SCs that we visited did utilize un-tied funds. We suggest that all Sub Centers (SCs), PHCs and CHCs, be provided a list of essential items/equipments that each HF should necessarily have. This will automatically help utilize the un-tied funds.

8. Clear guidelines should be provided to PHC/CHC doctors and ANMs about the use of NRHM funds at their disposal.

Pre-Natal Checkups:

9. With the exception of pre-natal checkups for expectant mothers, the delivery of healthcare in rural India remains almost entirely curative in nature. With hypertension on the rise in the country, it is suggested that blood pressure be examined on a regular basis for all patients visiting sub-centers and PHCs. ANMs at the sub-centre level and nurses at the PHC level should in the normal course examine blood pressure as part of antenatal care, as pregnancy-induced hypertension is a major contributor to maternal mortality in India.

PHC Infrastructure:

10. With surging institutional deliveries, there is urgent need to provide larger space in the PHCs to accommodate expectant mothers such that they stay in the health facility where they deliver at least 36-48 hours post delivery.

Training for PRIs, VHSCs and RKS Members:

11. There is a need to impart training and conduct awareness camps for the members of PRIs, Village Health and Sanitation Committees (VHSCs) and RKS without losing time.

II. Actions to be completed within next Two Years:

Improving Infrastructure and Facilities:

12. The increased public health spending should finance infrastructure improvements in the rural sub-centers, primary and community health centers and the district hospitals. Additionally, much higher level of spending is needed for higher salaries to be paid to doctors working in remote and inaccessible rural areas, essential drugs and supplies, vaccines, medical equipments, laboratories, and the like. In terms of human resources in the health centers, state governments need to appoint more auxiliary nurse midwives, trained birth attendants, technicians, pharmacists, doctors, and specialists. In the lagging states, governments need to provide cell phones to doctors and ANMs in rural PHCs. These measures will help increase the utilization of the public health centers and consequently bring down the rather high out-of-pocket expenses of their rural residents.

Information System and Data:

13. We suggest that the state governments utilize information technology – NRHM Health Management Information System (HMIS) to improve the performance of their public health facilities. The primary objective of the HMIS will be to provide operational information for better service delivery, monitoring and policy formulation. It will also provide adequate feedback to the providers facilitating constant assessment of their performance and thereby providing opportunities for improving the same. Clear directives are needed for high quality routine health information systems that rely on one time accurate data capture at source of transactions between beneficiary and health system.

Village Level Management and Supervision:

14. In order to improve the delivery of health services, we suggest supporting community oversight of village-level health services, including panchayat responsibilities for oversight of sub-centers, and Primary Health Centers (PHCs). While the 73rd and 74th Amendments to the Indian Constitution allow for a democratic system of governance in health to the multilayered local bodies, their implementation leaves much to be desired. Such

devolution of authority has taken place only in Kerala, which invested time and resources in systematically building capacity for governance in local bodies. Most states need to strengthen their existing programs of capacity building in the PRIs.

ASHAs' Training:

15. NRHM can play a significant role in bringing down diarrhea, pneumonia and neonatal mortality. Together these three diseases are responsible for more than two thirds of the under 5 mortality. The MDG4 goals cannot be met without significant input into preventing these deaths. Neonatal mortality reduction in particular is complex and will require specialized training for ASHA workers. It is unrealistic for all ASHA workers to be trained in the complexities of managing neonates. All ASHA workers should have basic training in newborn care but a selected cadre of ASHA workers should have specialized training in neonatal care.
16. Current training programs of the ASHAs are extremely inadequate, both in terms of the quality of training being imparted and the time being allocated for their training. Presently, training of ASHAs is only for 21 days as a one-time course and occasionally an additional 5 days of in-field training, the latter being implemented very irregularly. Not only is the training required to be far more comprehensive than what it is currently, it should be an on-going process, at regular intervals, throughout the year, say at least for the first two years of an ASHA's recruitment.
17. Ideally, ASHAs should be trained using information and communications technology (ICT) at the district headquarters. The training can be imparted by a group of trainers centrally from the State capital to all the districts simultaneously on fixed dates which can be announced well in advance. Additionally, trainers available at the district headquarters should supplement class room training with in-field training of ASHAs. Auxiliary Nurse Midwives (ANMs) can play a critical part in the in-field training of the ASHAs.

III. Actions to be completed within Five Years:

Public Health Managers:

18. In all our field visits, we found serious problems due to lacking management structures. An effective and efficient management structure needs to be put in place at the village, block and district levels. Most importantly, there is a need for a Health Coordinator to manage the proliferation of specific health programs (ASHAs, nutrition, immunization, malaria control, and countless other programs directed to specific disease conditions) and to look after the integration of logistics, physical facilities, staffing, and community outreach. Clear directives are needed for professional management by public health managers (not clinicians or generalists) at least up to the district level.

Emerging Disease Burden:

19. Many parts of rural India are experiencing an epidemiological transition and this is reflected in a growing burden of non-communicable diseases. Non-communicable and chronic diseases are increasingly being seen as a leading cause of death in rural India. Hypertension, Type II Diabetes and Cardiovascular diseases are on the rise in rural India. It is critical to keep these emerging disease burdens in mind while scaling up health services. We suggest that under the NRHM umbrella, programs are put in place to deal with the growing burden of these diseases.

Large Scale Training and Education:

20. Increased supply of doctors, specialists, pharmacists, technicians, trained nurses and midwives, etc. has to be ensured for the success of the scaling up effort. This requires large scale training and specialized education by

encouraging private sector institutions to operate and expand the number of seats in such professional courses. Such institutions need to be formally recognized and properly monitored and supervised to ensure quality of training and education imparted. Although all this can take 4 to 5 years before qualified doctors and specialists can emerge in adequate numbers, it can increase the supply of paramedics very quickly. If the expansion of facilities is properly planned and phased out, the problem can be solved to a considerable extent.

IV. Issues Requiring Immediate Review and Subsequent Action:

21. Since one of the core strategies of the NRHM is to train and enhance capacity of the PRIs to own, control and manage public health services, the following questions need to be looked into by the state governments: Has the power and authority that has been devolved to the PRIs on paper actually reached the people? Do they understand their duties/responsibilities on the one hand and their authority on the other? Do the PRIs have the capacity to manage health centers? Are there regular and comprehensive capacity building programs in place? And are any measures being undertaken to ensure that the caste and patriarchy do not prejudice effective management at the local level?
22. The monetary incentives provided to population under different programs need to be seriously reviewed and modified appropriately. For instance, the monetary incentives for accompanying the delivery cases or for sterilization operation motivated by ASHA are perverse, Rs.500 for a delivery case and Rs.150 for sterilization operation. In general there is a need to review and improve the incentives for voluntary uptake of family planning services as fertility rates remain very high among impoverished rural populations, and for improvement in the quality of family planning services.
23. The policy to have several specialist doctors at CHC level must be reviewed. Instead, general practitioners (GPs) with some experience in adequate number can address the current local needs much better. Specialists can be encouraged at higher level right now and later at the lower levels.
24. The system of insisting on co-signatories for operating NRHM funds needs serious review. With some indirect checks and balances, the relevant departmental official should be given the authority to operate the funds with only his/her signature.

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Appendix I

Regression Technique: Explanatory Note

The statistical technique of “Regression” used in this report is a very popular tool of multivariate analysis. When the purpose of the investigation is to examine hypotheses about possible causal links among variables, this technique is very useful. In calculus (or mathematics), such causal relationships between a dependent variable (Y) and independent variables ($X_{i,s}$) are considered through the concept of a function:

$$Y = f(X_1, X_2, X_3, \dots) \quad (1)$$

What this says is that as the values of the independent variables X_1, X_2, X_3 , etc. change, the value of the dependent variable (Y) also changes in a well-defined systematic way given by the relation ‘f(--)’’. Thus, the independent variables X_1, X_2 , etc. are called expected determinants of the dependent variable Y.

In order to estimate this function and the relationship among variables with the help of statistical data on those variables, the function is considered in its simplest linear form, i.e.,

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + \dots + u \quad (2)$$

In the above equation (2), the term ‘u’ represents error term and is added to the function given in equation (1) to take into account various possible errors likely to arise due to mis-measurement of variables, mis-specification of functional form, missing variables, random factors affecting Y (dependent variable) in either directions, etc. The critical task, then, is to estimate statistically with the help of the data collected on all variables the parameters, viz. a, b_1, b_2, b_3 , etc. The statistical formulae to find out the values of these parameters (a, b_1, b_2 , etc.) and their respective likely errors are known as “Regression Technique”. The formulae for the regressions used in the present report are derived on the basis of minimizing the cumulative errors representing the aggregate deviation of each observation in terms of value of Y from its corresponding expected value as given by our hypothesized equation. This approach is known as Ordinary Least Squares (OLS) technique. In order to estimate the probable errors of the estimates of parameters obtained by applying the formulae so obtained, we assume that the error term (u) in equation (2) above is truly random, normally distributed, unrelated across observations and having constant variance over all observations. These assumptions about ‘u’ imply

that our hypothesized causal relation as given in equation (2) does not have any serious conceptual or statistical problem of mis-measuring the variables, mis-specifying the functional form, missing systematically significant variables in the relationship, etc. If these assumptions are not valid, there are statistical tests to detect which of them are problematic.

Regarding the interpretation of the empirical results of the regressions reported in the text, the most relevant is ‘ r^2 ’, which represents ‘the coefficient of determination’ measuring the overall extent of the observed variance in the dependent variable explained by the hypothesized independent variables taken together. Higher the r^2 , better is the result. Its value is tested for statistical significance through the F-statistic, which represents ‘Goodness of Fit.’ It tests the overall null hypothesis (H_0) against the alternative hypothesis (H_A) :

$$H_0: b_1 = b_2 = b_3 = \dots = 0 \quad (3)$$

$$H_A : \text{All } b_1, b_2, b_3, \dots \neq 0 \quad (4)$$

Thus, when r^2 is high ‘enough’ to make it statistically significant at the desired level of significance, the null hypothesis (H_0) stated in equation (3) is rejected in favor of H_A . However, the H_A does not test whether each of ‘b’ is individually zero or not. It only says that all b’s are not zero.

The empirical results of regression also provide statistical tests for the individual b’s in the form of t-statistic for each b. If the t-statistic is statistically significant at the desired level of statistical significance, we can reject the null hypothesis ($H_0 : b = 0$) in favor of the alternative hypothesis ($H_A : b \neq 0$). The interpretation of ‘b’ parameter (which is not emphasized in this report) is the partial impact or the rate of change in the dependent variable Y when the corresponding independent variable (X_i) changes by one unit of its measurement with all other X variables remaining the same (or not changing their values). Thus, the regression technique basically helps to measure the partial causal effect (impact) on the dependent variable of each of the identified independent variable when other independent variables are held constant. The statistically significant variables (X_s) are, then, identified as the observed determinants of the dependent variable (Y).

Appendix II

CHC and PHC Questionnaire

Village: _____; Tehsil: _____; District: _____; State: _____; Head of institution: _____; Investigator: _____

General

Type of Facility: PHC/Block PHC/CHC/

Managed by: Panchayat/District Panchayat/ District Administration

Is this an upgraded PHC/CHC? Y/N

Timings of the Facility (OPD): Morning - from _____ to _____;

After noon - from _____ to _____;

Infrastructure and Facilities:

Building: Own/Rented

Distance from Village _____Kms.

Does the health facility have all necessary equipments for conducting Deliveries (Y/N) and Surgeries (Y/N)?

Are the prescribed medicines available in the HF pharmacy? (Y/N)?

To what extent? _____

How often are the linen (bedsheets,covers,etc) washed? ____ (times per week)

How often are the linen (bedsheets,covers,etc) replaced by new ones? ____ (times per year)

Does the health facility get a regular supply of all the required medicines?

General (Y/N);

AYUSH (Y/N)

After NRHM (2005) has there been any

Major Repair/ Maintenance/Renovations (Y/N)

S.NO.	Type of Infrastructure/Facility	Yes/NO	Number/ Details
1	OPD Rooms		
2	Consulting Rooms (AYUSH)		
3	Consulting Rooms (Specialists) (CHC)		
4	Wards		Male_____ Female_____
5	Fully Equipped Labor Room		
6	Minor OT (PHC)		
7	General OT		
8	Beds		
9	Sitting for Relatives Near Bed		
10	Facility for Food		
11	Electricity Supply		Hrs-
12	Water Supply		Hrs- Source-
13	Drinking Water		Source-
14	Functional Generator		
15	Toilet		Male- Female-
16	24 Hr Delivery Facility		
17	Telephone		
18	All weather approach road		
19	Functional Vehicle(s)		Ambulance_____
20	Linkage with a blood bank (CHC)		FRU (Blood storage Unit) (Y/N)
21	Medicine Store		General- <u>Y/N</u> AYUSH- <u>Y/N</u>

Manpower Details:

S.No.	Manpower	Number Available	Sanctioned posts
1.	General Practitioner		
2.	Physician		
3.	Surgeons		
4.	Gynecologist		
5.	Pediatrician		
6.	AYUSH		
7.	Anesthetist		
8.	Staff Nurse		
9.	ANM		
10.	Ward Boys		
11.	HA / LHV (Male)		
12.	HA / LHV (Female)		
13.	Health Educator		
14.	Laboratory Technician		
15.	Radiographer		
16.	Driver		
17.	Block Program Manager		
18.	Accountant		
19.	Data Assistant (Computer Manager)		
20.	Cleaning Staff		
21.	Administrative and other Staff		

Are Doctors provided with functional residence? (Y/N) How many?__

Are Nurses provided with residence? (Y/N) How many?__

Who is available at night in the Health Facility?

Doctor: - Y/N; ANMs/Nurse: - Y/N;
 Attendants: - Y/N; Others: - _____

In your perception, after implementation of NRHM norms/JSY (Janani Suraksha Yojna), has there been an improvement in the situation of: (*ask the doctor of PHC/CHC*)
Infrastructure? Y/N Manpower availability? Y/N

How many outdoor patients (OPD) visit the health facility per day? _____

How many deliveries have been conducted in the health facility during the last one year? Total _____ Normal _____ Cesarean _____

In your perception, after implementation of NRHM, has there been a significant increase in number of:

Institutional deliveries? Y/N; Out Door Patients (OPD)? Y/N

How many hours usually mothers stay in HF after delivery? _____ Hrs
If left before 24 hrs, why? _____

How do you receive funds under NRHM? (i) From the District? (Y/N); (ii) Directly from the state? (Y/N);

What is the frequency of receiving funds? (Monthly/Quarterly/Half Yearly/Annually/Irregular)

Is there any delay in getting funds for NRHM? (Y/N); How much? _____

Rogi Kalyan Samiti (RKS): (*Questions for the RKS member*)

Is RKS formed? (Y/N) When? _____ (Pl. ask head of the HF)

Is it registered? (Y/N)

Is any health facility staff a member of the 'RKS'? Y/N

How long has the RKS been functioning? _____

In your perception is the RKS playing any effective role in:

1. Addressing complaints of the patients (Y/N)
2. Improvement of health facility infrastructure (Y/N)
3. Improvement of health related equipments (Y/N)

4. Improvement of lodging/boarding facilities to patients and their relatives (Y/N)
5. Improvement in support services like cleaning, laundry, diagnostic, ambulatory, waste disposal etc. (Y/N)

What is the frequency of RKS meetings? _____ per year

When was the last meeting held? _____

Does the 'Rogi Kalyan Samiti' generate any funds? (Y/N).

Amount: _____ (Rs.) per year

Person in charge of funds _____ (Designation)

Is there any audit of the fund? (Y/N)

Major Heads under which the funds are spent with amount as per last year accounts

1. _____ 2. _____

3. _____ 4. _____

Are the funds adequate to meet all needs? (Y/N)

If, no what is the shortfall? Rs. _____ per year

For, what purpose?

How do you utilize the untied funds?

(i) Maintenance? (Y/N); (ii) Seeking services from private doctors? (Y/N);

(iii) Repairs/Renovation? (Y/N); (iv) Buying equipments? (Y/N); (V) Buying

medicines? (Y/N); Paying for services like cleaning, security, etc.? (Y/N);

(vii) Hiring contractual staff? (Y/N)

Since when did you start receiving the untied funds? _____

What has been the proportion of untied funds used during 2005-06? _____%

2006-07? _____% 2007-08? _____%

If the untied funds are not fully used, what are the reasons?

Remarks/ observations from investigators:

Questionnaire for ANM and Sub Center

Village: _____; Tehsil: _____; District: _____; State: _____; Head of institution: _____; Investigator: _____

General Information

Age _____ Name of the sub center where posted _____

Do you stay in the same village? (Y/N)

Caste: SC/ST/OBC/General

Month and year of joining as ANM _____

How many villages are covered by your sub center? _____

How many villages covered by your SHC have ASHAs in position? _____

How many villages covered by your SHC have VHCs in place? _____

How many ANM's are posted in your SHC? _____

Is the building of the SHC Owned/Rented? How many rooms? _____

Do you have 1. delivery table (Y/N) 2. Medical equipments (Y/N) 3. Electricity Connection (Y/N) 4. Water supply for 24 hours (Y/N) 5. Is moped / two wheeler given (Y/N)

Program interventions

Were you involved in the selection of ASHA in your area? (Y/N)

When were ASHAs recruited from your area?

Name of the village	Month and year of recruitment

How often do you meet the ASHAs of your area? Weekly (Y/N) Fortnightly (Y/N) Monthly (Y/N) Rarely (Y/N)

Do you feel ASHA has reduced your work load? (Y/N)

How do you feel ASHA is contributing to NRHM by---

1. Mobilizing community to avail health services (Y/N) 2. Identifying and accompanying complicated delivery cases (Y/N) 3. Providing health information to the community (Y/N) 4. Acting as depot holders (Y/N) 5. Providing new born baby care (Y/N)

What is the amount given to your sub center under NRHM? _____ p.a.

Have you received the grant for your sub center so far? (Y/N)

If yes, have you opened a bank account? (Y/N) Is it a joint account? (Y/N)

If yes, who is the other account holder? Sarpanch (Y/N) ASHA (Y/N)
AWW (Y/N) Medical Officer (Y/N) VHC member (Y/N)

What do you do with the grant/untied fund?---

1. In repairing and renovation (Y/N)
2. In purchasing equipments (Y/N)
3. In buying medicines (Y/N)
4. For electricity supply (Y/N)
5. For running water supply (Y/N)
6. Any other _____

What % of untied fund was spent by you in 2005-06? ____% 2006-07? ____% 2007-08? ____%

Are there any problems encountered by you in/after spending these funds? (Y/N)

Do you think Rs. 10,000 is adequate for untied fund? (Y/N) How much is adequate?
Rs. _____

Have you been provided the essential drug kit for your center? (Y/N)

What is there in the drug kit? ORS (Y/N) Chloroquine (Y/N) Antibiotics (Y/N) Pain killers (Y/N) TB drugs kit (Y/N) Disinfectants (Y/N) DDK's (Y/N) Oral contraceptives (Pills) (Y/N) Condoms (Y/N)

How often does your drug kit get replenished?-- Weekly (Y/N) Fortnightly (Y/N) Monthly (Y/N) Rarely (Y/N)

Service delivery

Do you conduct deliveries? (Y/N)

Do you conduct deliveries-- At Home (Y/N) At the Sub Center (Y/N)

How many deliveries you conduct in a month, on an average? _____

How do you report the deliveries conducted at home--As home deliveries (Y/N) As deliveries in Sub Center (Y/N)

Where do you send the complicated delivery cases-- Dai (Y/N) PHC (Y/N) CHC (Y/N)

District Hospital (Y/N) Private practitioner (Y/N) Bengali doctor (Y/N)

How many traditional birth attendants (TBA's) or Dais are there in your area? _____

Are they (TBA's/Dais) given any incentives to conduct deliveries? (Y/N)

Maternal and Infant deaths

How many maternal and infant deaths have occurred in your area? Please fill in the table

Year	Maternal Mortality			Infant mortality		
	Before delivery	During delivery	Within 42 days of delivery	Still birth	Within 28 days week	Within one year
2003-04						
2004-05						
2005-06						
2006-07						
2007-08						

Remarks/ observations from investigators:

ASHA Questionnaire

Village: _____; Tehsil: _____; District: _____; State: _____; Name of ASHA _____ Investigator: _____

General Information:

Age _____; Caste: SC/ST/OBC/General; Education: _____

Marital Status: unmarried/ married/ widowed/ divorced/separated ?

Month and year of joining as ASHA _____

Does the ASHA work for the same village/village panchayat where she stays? (Y/N)

Selection:

Were there any focused group discussions (FGDs) held in your village before selection of ASHA? (Y/N); Who held the FGDs? _____

Did the FDGs involve awareness about concept and roles of ASHA among the village community? (Y/N)

Was there any kind of short listing of candidates done as per your knowledge for selection of ASHA ? (Y/N)

Was there a 'Gram Sabha' meeting held during the selection process of ASHA? (Y/N)

Before joining as ASHA did you work as community based worker? (Y/N)

Training:

Has the ASHA worker received any training after joining? (Y/N)

How many days of training has the ASHA received? _____; How many times in last one year? _____

Was the training given to you useful in: Developing and improving you knowledge and skills? (Y/N); Solving your doubts and troubles? (Y/N);

Refilling of supplies? (Y/N); Payments of performance incentives? (Y/N)

Did you receive any compensation for the attending training? (Y/N)

How much ? Rs. _____

Do you receive regular 'on the job training' at your village? (Y/N);

Who provides on the job training? ANM/NGO/Other _____ (*specify*)

Roles and Responsibilities:

Have you been given a drug kit? (Y/N)

Does your drug kit contain? ORS (Y/N); Iron tablets (Y/N); Oral Pills (Y/N);

Condoms (Y/N); Disposable delivery kit (DDK) (Y/N)

Have you received any medicines? (Y/N) If 'Yes' for what purposes? 1. _____;

2. _____; 3. _____; 4. _____

Is the ASHA clear about her roles for:

1. Provide information about existing health services? (Y/N)

2. Creating awareness to the community on heath, hygiene and nutrition? (Y/N)

3. Mobilize the community in their access to the health services such as :

ANC (Ante Natal Care)? (Y/N); PNC (Post Natal Check up) (Y/N);

Immunization? (Y/N); Sanitation? (Y/N)

4. Counseling women on :

Birth preparedness and safe delivery? (Y/N); New born care? (Y/N)

Breast feeding and complementary feeding? (Y/N); Immunization of

infants? (Y/N); Use of contraceptives/Family planning measures? (Y/N);

5. Escort/accompany pregnant women or sick children to the nearest health facility? (Y/N)

6. Informing the Sub-centre/PHC/CHC about: Births and deaths in the village? (Y/N); Outbreak of health problem/disease? (Y/N/ Not required)

7. Promoting construction of household toilets? (Y/N)

Which health facility do you escort the pregnant women or sick children to?

Sub-Centre/PHC/CHC/Private; Distance in Kms: _____

How many pregnant women did you escort to HF in the last one year? _____

How much money are you given to accompanying a mother to a health facility? Rs. _____

Do you have to spend anything over and above of what you are reimbursed? (Y/N)

How much? Rs. _____

Payments and Incentives:

Do you receive any performance based incentive? (Y/N);

How much? Rs. _____ (Average per month)

How do you get these incentives? (As advance or direct payment from the ANM's/From the Sarpanch /From the PHC Medical Officer)

When do you get these incentives? _____

Are you happy with the incentives given under the programme? (Y/N)

Are you demanding regular monthly salary? (Y/N) How much? Rs. _____

For which activities do you get performance based incentive?

Incentive	AN C	Check up by doctor	Institutional Delivery	PNC	Immunization of Children	Family Planning	Total
average no. per month							NA
Incentive Amt (Rs.)							
Details							

Any other incentives? (Y/N); Details _____

How do you remember the work done by you in a month? _____

Do you report it to the ANM/Sarpanch/PHC Medical Officer ?

Do you have a Bank account/ Post Office account/ No account?

Coordination:

Do you receive proper support from the ANM or the anganwadi worker (AWW) for:

Refilling drug kits? (Y/N); On the job training? (Y/N);

Guidance regarding: Use of various medicines? (Y/N), Doses and side-effects
of contraceptive oral pills? (Y/N), Danger signs of pregnancy and labor pain?

(Y/N); Receiving performance based incentives? (Y/N)

Do you support the ANM and AWW for:

Preparation of list of eligible couples (Y/N) and children below 1 year of
age (Y/N)?; Bringing pregnant women, feeding mothers and infants to AWC/Sub-
centre for nutrition and health check up etc..? (Y/N);

Are you recognized by the people of your village? (Y/N) Do they support you for
your roles and responsibility as an AHSA worker? (Y/N)

Are you actively involved with the local Panchayati Raj Institution (PRI)/Village health
committee (VHC) in your village? (Y/N)

Do you receive proper support from the PRI and VHC for:

Creating awareness for health and hygiene among the villagers? (Y/N);

Conduction cleanliness and sanitation programs? (Y/N); Construction of
households toilets? (Y/N); Monetary requirements if any? (Y/N);

Do you have any difficulty if functioning? _____

Why do you feel people tend not to avail public health services?

1. Quality of service
2. Not aware
3. Services not available
4. Have to pay extra money
5. Other _____ (specify)

Would you like to work as an ANM later on? (Y/N)

Is there increase in the institutional deliveries in last two-three years? (Y/N)

If so what are the reasons according to ASHA? _____

Remarks/ observations from investigators:

Questionnaire for VHC/PRI/RKS members

Village: _____; Tehsil: _____; District: _____; State: _____; Head of institution: _____; Investigator: _____

General Information

Are you a VHC member (Y/N) or PRI member(Y/N) ?

Caste: SC/ST/OBC/General Month and year of joining as member _____

Education: _____

Program Interventions

Are you aware of a program called NRHM or its Hindi version? (Y/N)

Were you given any orientation about the program by the health department workers or officials? (Y/N) For how many days? _____.

What is your role in the program? 1. Mobilizing Community (Y/N) 2. Ensuring regular visits of ANM (Y/N) 3. Selection of ASHA (Y/N) 4. Proper functioning of SHC's (Y/N)

Is there any amount given to your sub center under NRHM? (Y/N) How much? _____ p.a.

Have you received the untied fund for your sub center so far? (Y/N) When? _____

If yes, have you opened a bank account? (Y/N) Is it a joint account? (Y/N)

How much of the untied fund was used in 2005-06? _____ % 2006-07? _____ % 2007-08? _____ %

Do you feel through NRHM the government has decentralized decision making? (Y/N)

Do you feel more empowered after the launch of NRHM? (Y/N)

How often the meeting of VHC/PRI members held ? Weekly/Monthly/Quarterly

/Annually

Where they are generally held? Sarpnach's house/Panchayat office/Health facility

Who calls the meeting? _____

Do you feel that NRHM has improved the health service delivery in your area? (Y/N)

Where do you look for further information about NRHM? _____

What is the role of ASHA in VHC? _____

What is the role of ANM in VHC? _____

In your perception do you think there are interlinks in functions of ANM, ASHA, and

AWW? (Y/N) What interlinks? _____

Role as Rogi Kalyan Samiti (RKS) member

Are you a member of Rogi Kalyan Samiti at the PHC (Y/N) CHC (Y/N) District level (Y/N) Not a member (Y/N)

If yes, what in your opinion is the function of RKS?

6. Addressing complaints of the patients (Y/N)
7. Improvement of health facility infrastructure (Y/N)
8. Improvement of health related equipments (Y/N)
9. Improvement of lodging/boarding facilities to patients and their relatives (Y/N)
10. Improvement in support services like cleaning, laundry, diagnostic, ambulatory, waste disposal etc. (Y/N)

What is the frequency of RKS meetings? _____ per year

When was the last meeting held? _____

Does the 'Rogi Kalyan Samiti' generate any funds? (Y/N).

Amount: _____ (Rs.) per year

Person in charge of funds _____ (Designation)

Is there any audit of the fund? (Y/N) Internal or External?

Major Heads under which the funds are spent with amount as per last year's accounts

1. _____

2. _____

3. _____

4. _____

Are the funds adequate to meet all needs? (Y/N)

If no, what is the shortfall? Rs. _____ per year

For what purpose? _____

Remarks/ observations from investigators:

Questionnaire for District Programme Management Unit

Name of the investigator: _____

Date and venue of the discussion: _____

Human Resource

Name of the position	Sanctioned position	Filled	Date of joining (month and year)	Filled through fresh recruitment or by deputation
District Program Manager				
District Accounts Manager				
District Data Manager				

Financial and Physical Progress

- Financial Progress

Financial year	Budgeted amount	Expenditure
2005-06		
2006-07		
2007-08		
2008-09 (up to Dec 08)		

- Can you please share with us the detailed breakup of the budgeted amount and expenditure incurred under various heads?
- How do you get the funds for the program
- Can you please share with us the physical progress of the program from 2005 to 2008 (up to December)?
- How do you use the funds available under flexi pool/ untied funds?

Monitoring

- On which indicators do you monitor the program?

- Are there any monitoring guidelines/ formats sent from the state? (Yes/No)
- If yes, can you please share it with us?
- Do you receive any feedback from the state on the reports that you send to them? (Yes/ No)

Issues and suggestions

- What challenges are you facing in implementing the program in your district?
- Do you have any suggestions on how these challenges can be dealt with?

Remarks/ observations from investigators: