

## Challenges to implement HMIS in rural India according to staff's perspective

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### **Abstract –**

Every area of industry, including education, healthcare, libraries, entertainment, and even agriculture, is being revolutionized by information technology. The standard of living of the rural people in India is also rising in light of technological advancements in the fields of agriculture, health, education, and medicine. Modern information technology offers advancements over antiquated duplication and recording methods. Significant advancements in the fields of data processing, sharing, and administration have also reduced costs. eHealth, the newest buzzword, appears to be linking domains such as business, information, and healthcare. In the process, it may also result in informed patients and public involvement.

Decision-makers at all levels of the health system rely on the Health Information System (HIS) to ensure the timely and reliable collection, analysis, and use of data. Information is used in many different contexts, such as developing national policies and goals, keeping track of advancements made in relation to national priorities, and handling public health emergencies. The obstacles associated with implementing the Health Management Information System (HMIS), which was developed under the National Rural Health Mission (NRHM).

Today's health issues require an information technology approach to be solved. The web application might operate as a catalyst by providing a range of reactions. The Internet has given the government a reprieve by providing a quick and efficient means of reducing costs while also improving the quality of healthcare services. There is a need to enhance the system's quality and betterment in light of the growing need for the use of the Health Management Information System (HMIS) to raise the standard of healthcare services. It is evident from the comparison analysis of officers and staff that there are certain e-Health-HMIS implementation problems.

**Key Words** –Information Technology (IT), Health Management Information System (HMIS), Health Centers, Implementation issues, Health Information System (HIS)

### **Introduction:**

Information Technology is turning every aspect of business today, be it education, health, library, entertainment or even agricultural sector. The last two decades have seen sporadic rise in automation and computerization of processes hence offering an easier livelihood. Indian

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rural population's standard of living is also progressing considering the technology improvements across the education, health, medical and agricultural services. Even if computer is a mere information processing tool, it could come helpful to the villagers with information on seasons, agricultural inputs, nearest medical centers, education centers, government schemes and job opportunities.

These days, it seems like information technology holds the secret to everything. The IT boom has saved the day by streamlining activities for government agencies, corporations, schools, and stock markets alike. This is where the internet comes into play, and it's like having a lifeline for big problems. India's IT industry has advanced greatly. Government level interactions and communication processes have been made easier by the National Informatics Centre (NIC), which has successfully brought PCs to every district in the nation. Even in rural areas, the internet is useful for disseminating information. The agricultural, health, and education systems in rural areas are thriving thanks to I.T.

The healthcare industry is one challenge for I.T. and has the potential to do great things, as the paramedics in the village can obtain the newest programs and consult with experts on specialties and illnesses that are beyond their scope of practice in remote areas. India's health awareness can be increased with the use of the internet. The healthcare systems are affected by a significant digital divide between those who can afford internet connection and are well-informed and those who struggle to meet their fundamental needs. Patients from abroad benefit most from the e-Health idea, which makes it easy for them to select medical facilities anywhere in the world with a single click. The internet can be used to obtain up-to-date information, monitor diseases and natural catastrophes, and deliver timely and pertinent resources.

### **Objectives of the Study:**

The specific objectives of this paper are as under –

1. To understand challenges of implementation of HMIS in rural India.
2. To take overview of staff and officers from health centers about Implementing issues of HMIS.
2. To give findings on challenges of HMIS Implementation based on comparative study of staff and officers.

### **Research Methodology:**

The methodology adopted is a mixture of literature review, document analysis such as government gazettes, questionnaire and interview with staff and officers of health centers. The data required for this paper has been collected through questionnaire. This paper deals with comparative study of officers and staff regarding various implementation issues of Health Management Information System (HMIS). It also deals with study of different opinions of medical officers (MO) of primary health center (PHC), Taluka Health Officers (THO) and staff of Primary Health Center (PHC) and Sub Center (SC) respectively.

### **Literature Review:**

**NRHM's Common Review Mission (CRM):** The Common Review Mission (CRM) was laid for Mission Steering Group's consent of review and evaluation. The appraisal was conducted in November 2007, 16 months after NRHM got final cabinet approval in July 2006 and the actual processes began. The CRM was offered to task to assess the progress of NHRM on 24 factors relating to core strategies and areas of concern. Hence CRM was endorsed with the task of identifying constraints and simultaneously recommending areas needing reinforcing. The District health planning should be enriched to next level, where the district has sufficient facility to make its own plans. Budgets allocated should flow according to the plan, where the plan is widely detached and is used as the measure against which outcomes are socially reviewed. States and Districts need the time to learn and improve and an agency or team which acts as an institutional memory of the plans needs to proactively pursue their implementation.

**Gupta & Papagari (2004):** The health challenges today need to be tackled the Information Technology way. The internet tool could serve a catalyst offering variables reactions. The Internet would help reaching the masses in spreading healthcare and self care awareness. The government has had a breather by Internet offering a speedy way to cost cutting and at the same time efficiency in health care delivery.

According to the World Bank report "Better Health Systems for India's Poor", India is in the midst of a "health evolution" - the evolution is demographic and social. The major ailments still prevalent in the majority of the population is, preventable infections, pregnancy, childbirth related complications, and malnutrition."

**Ranganayakulu Bodavala, Takemi (2009):** India, as compared to other developing nations spends slightly higher amount in the health sector. Indian health care system covers a

population of as good as 1000 million residing at 6, 00,000 villages. An exhaustive healthcare system supporting such a huge population would certainly demand whooping investments. Statistics reveals, “India spends 6% of the GDP or \$13 per capita in the health sector.” In spite of such approaches, many key health indicators are very low, communicable diseases, maternal mortality and morbidity especially among the poor seems high and these indicators vary from region to region

Health Management system is responsible for scrutinizing many factors like drug stocks, equipment status & availability, personnel & finances involved. This factors needs to be monitored on regular basis. Timely and accurate information is required to improve serviced delivery. The HIS renders data recording, retrieval and storage. This data is available at National, State and institutional level facilitating planning, organizing and control of health care facilities.

#### Data Analysis:

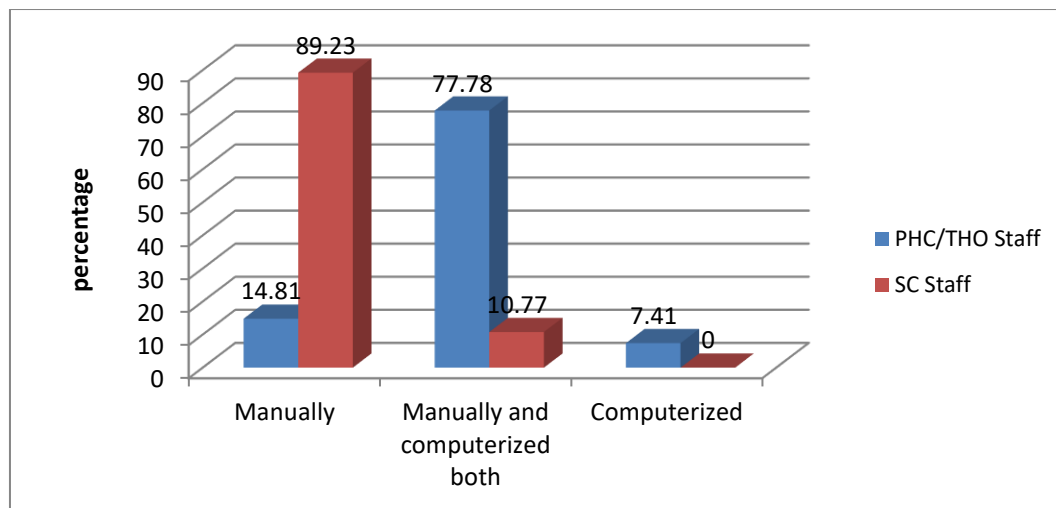
#### Challenges to implement HMIS according to staff's perspective. (Comparative study of PHC/THO staff & SC staff):

#### Office automation status – staff:

The current table shows office automation status of health centers according to staff perspective.

Office automation status at health centers	PHC/THO Staff		SC Staff		Total	
	Count	%	Count	%	Count	%
Manually	4	14.81	58	89.23	62	67.39
Manually and computerized both	21	77.78	7	10.77	28	30.43
Computerized	2	7.41	0	0.00	2	2.17
Total	27	100.00	65	100.00	92	100.00

**Table 1: Office automation status - staff**



**Graph 1: Office automation status - staff**

**H<sub>0</sub>:** There is no significant difference between the opinion of respondent at SC and PHC level staff for the mode of Data analysis, report generation and Evaluation of health programs.

**H<sub>a</sub>:** There is significant difference between the opinion of respondent at SC and PHC level staff for the mode of Data analysis, report generation and Evaluation of health programs.

	Value	df	p-value
Pearson Chi-Square	48.634	2	0.000
N of Valid Cases	92		

**Table 2: Test statistics for office automation status - staff**

**Interpretation:** The calculated Chi-square value (48.634) is greater than its table value (7.38) and p-value < 0.025 at 5% level of significance. Hence it provides sufficient evidence to reject the null hypothesis and conclude that there is significant difference between the opinion of respondent at SC and PHC level staff for the mode of data analysis, report generation and evaluation of health programs. It does mean that the staff at SC level is mostly rely on manual mode but at PHC level both modes are used for some or other purpose.

The table 1 & graph 1 indicates that 21(77.78%) staff of PHC & THO are using manually as well as computerized mode for office automation. The 58(89.23%) staff of SC is doing work manually because there are no any facilities for computerization at SC. Sometimes

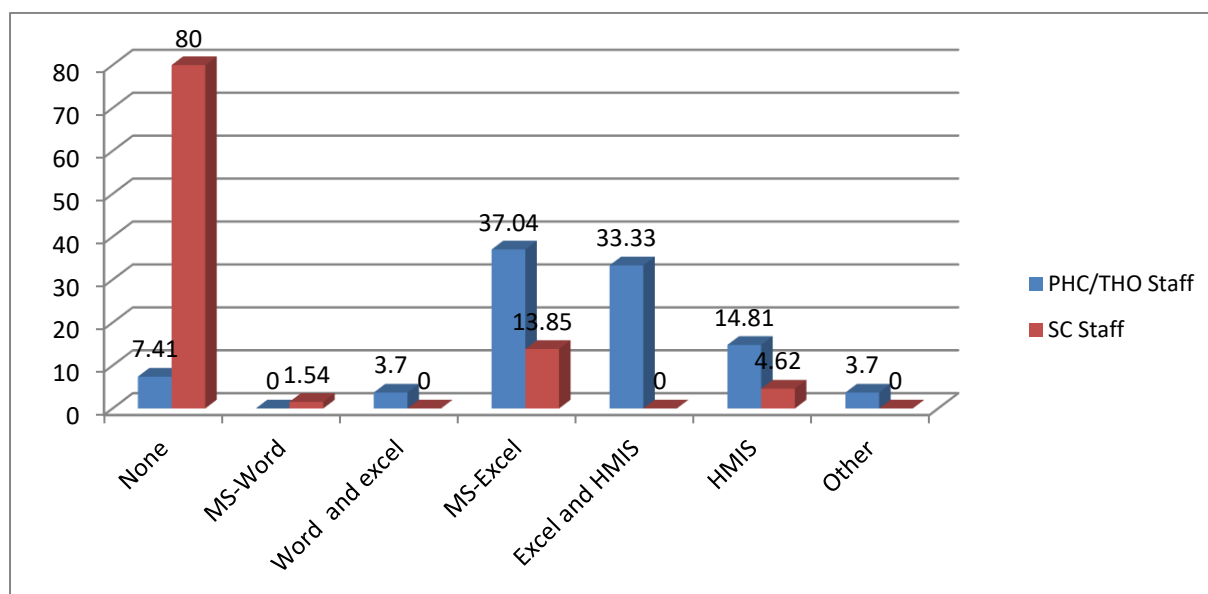
some of the staff of SC is using computers at PHC when there is meeting of SC staff with medical officers or health officers.

### Application/Software used for office automation:

The current table shows the application software used for doing office work i.e. for data analysis, report generation, evaluation of health indicator's etc.

Application/Software used for automation	PHC/THO Staff		SC Staff		Total	
	Count	%	Count	%	Count	%
None	2	7.41	52	80.00	54	58.70
MS-Word	0	0.00	1	1.54	1	1.09
Word and excel	1	3.70	0	0.00	1	1.09
MS-Excel	10	37.04	9	13.85	19	20.65
Excel and HMIS	9	33.33	0	0.00	9	9.78
HMIS	4	14.81	3	4.62	7	7.61
Other	1	3.70	0	0.00	1	1.09
Total	27	100.00	65	100.00	92	100.00

**Table 3: Software used for office automation**



**Graph 2: Software used for office automation**

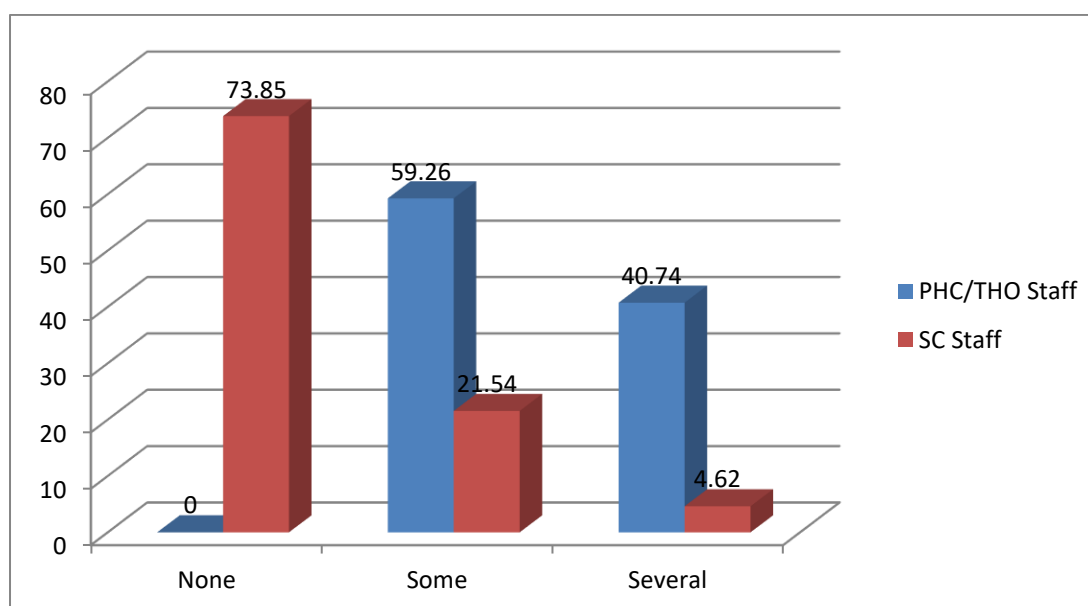
**Interpretations:** From the table 3 and graph 2 it is very clear that 37.04% staff of PHC & THO are using MS-Excel, 33.33% staff of PHC & THO are using MS-Excel as well as HMIS for data analysis, report generation and evaluation of health indicators. As there is no any computer facility, no internet facility, printer is not available at SC, the SC staff doing their work manually. The 80% SC staff are not using any software but 13.85% staff of SC is using MS-Excel sometimes at PHC.

#### Availability of trained staff for operating computers (SC & PHC staff):

The current table shows availability of trained staff to operate computers at their health centers'.

Do you have trained staff to operate computers	PHC/THO Staff		SC Staff		Total	
	Count	%	Count	%.	Count	%.
None	0	0.00	48	73.85	48	52.17
Some	16	59.26	14	21.54	30	32.61
Several	11	40.74	3	4.62	14	15.22
Total	27	100.00	65	100.00	92	100.00

**Table 4: Availability of trained staff (SC & PHC)**



**Graph 3: Availability of trained staff (SC & PHC)**

**H<sub>0</sub>:** Respondent at SC as well as PHC level, do agree for trained personal for using computer.

**H<sub>a</sub>:** Respondent at SC as well as PHC level, do not agree for trained personal for using computer.

	Value	df	p-value
Pearson Chi-Square	44.622	2	0.000
N of Valid Cases	92		

**Table 5: Test statistics - Availability of trained staff (SC & PHC)**

**Interpretations:** The calculated Chi-square value (44.622) is greater than its table value (7.38) and p-value < 0.025 at 5% level of significance. Hence it provides sufficient evidence to reject the null hypothesis and conclude that respondent at SC as well as PHC level, do not agree for trained personals for using computer. It means that more trained staff is available at PHC/THO level than that of SC level.

From the table 4 and graph 3 it is inferred that 59.26% staff at PHC & THO is trained staff available to operate computes. At SC, 73.85% staff has given their opinion that there is no trained staff available at their health centers. From oral discussion with staff of SC & PHC it is understood that computer facility is only available at PHC, THO etc., so there is some trained staff is available to operate computers but the computer facility is not available at sub centers, so there is less trained staff available to operate computers at their health centers.

**Findings Implementation issues of HMIS according to staff's perspective. (Comparative study of PHC/THO staff & SC staff):**

1. The study reveals that the 77.78% staff of PHC and THO are using manually as well as computerized mode for office automation. The 89.23% staff of SC is doing work manually because there are no any facilities for computerization at SC. Sometimes the staff of the SC uses computers at PHC when there is meeting of them at PHC with the officers of health units.



2. It is found that 37.04% staff of PHC and THO are using MS-Excel, 33.33% of them are using MS-Excel as well as HMIS for data analysis, report generation etc. As there is no any computer facility, no internet facility, printer is not available at SC, the SC staff doing their work manually. The 80% SC staff are not using any software but 13.85% staff of SC is using MS-Excel sometimes according to need at PHC.
3. From the study it is revealed that the evaluation of health indicators for Best Healthy Village Mission is done at PHC level than that of SC level. The 81.48% staff of PHC and THO and 95.38% staff of SC has agreed that evaluation of health indicators is done mostly at PHC level. The SC staff i.e. ANM collecting the data of health indicators, actual goal achieved by their village and send it to PHC for evaluation, then evaluation of these actual goals on expected goal is done manually at PHC.
4. It is found that 59.26% staff at PHC and THO is trained staff available to operate computes. At SC, 73.85% staff has given their opinion that there is no trained staff available at their health centers. From discussion of researcher with the staff of SC and PHC it is found that computer facility is only available at PHC, THO etc., so there is some trained staff is available to operate computers but the computer facility is not available at sub centers, so there is less trained staff available to operate computers at their health centers.

### **Conclusion:**

It is concluded from the study that all the facilities like computer, printer, internet connection etc. should be provided to every SC of the village to solve the major issue of implementation of HMIS. If these all facilities are available at every village's health centre i.e. SC then implementation of web based HMIS, decentralization of data entry as well as report generation at various levels is possible.

The stake holders like rural peoples those who are benefiterers as well as service providers i.e. staff and officers of the health units should be involved while designing and implementing HMIS for rural development. There should be trained staff available at every health centre to operate computer for effective implementation of HMIS. Based on the observations made during the study that as there is limited availability of local technical support at health centers which is one of the implementation issues for implementation of HMIS, the technical support

should be increased otherwise the technical support which is available at higher level i.e. THO or DHO level should be provided on urgent basis whenever required.

## References:

1. Andrew S. (2001), Information Communication Technologies, Poverty and Empowerment., Social Development Department Dissemination Note no. 3. DFID. London.
2. Avgerou C. (1990), Computer Based Information Systems and Modernisation of Public Administration in Developing Countries. In: Bhatnagar & Bjorn Anderson (ed)., Information Technology in Developing Countries, North Holland.
3. Bhatnagar & Subhash (1991), Impacting Rural Development through IT : Need to Move Beyond Technology, M.L. Goyal, (ed.), Information Technology in Every Day Life, Tata McGraw-Hill.
4. Cees H.J. (2001), Human Rights for Information Society. On the web IICD (The International Institute for Communication and Development) 2001: Research Brief, No. 1. March 2001.
5. CSI, Computer Society of India, (1981), Informatics 81, An International Symposium on Informatics for Development, February.
6. Kelles-Viitanen Anita 2003: The Role of ICT in Poverty Reduction. A paper written for EVA. Available on line.
7. Millar Jane and Mansell Robin 1999: Software Applications and Poverty Reduction. A Review of Experience. DFID, London.
8. Samiullah Yusaf and Srinivasa Rao 2002: Role of ICTs in Urban and Rural Poverty Reduction. A Paper in the CII-MoEF-TERI-UNEP Regional Workshop for Asia and Pacific on ICT and Environment, 2-3 May 2002 New Delhi.
9. Skuse Andrew 2001: Information Communication Technologies, Poverty and Empowerment. Social Development Department Dissemination Note no. 3. DFID. London.