Knowledge, Attitude and Practice (KAP) of HMIS among Health Officials in Selected Districts of Madhya Pradesh

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List of Acronyms

ANM	Auxiliary Nurse Midwife
ANMOL	ANM Online
ARSH	Adolescent Reproductive and Sexual Health
AWW	Anganwadi Worker
BCM	Block Community Mobilizer
BMO	Block Medical Officer
BPMU	Block Programme Management Unit
CDPO	Community Development Programme Officer
CHC	Community Health Centre
CMHO	Chief Medical and Health Officer
CS	Civil Surgeon
DEO	Data Entry Operator
DH	District Hospital
DHO	District Health Officer
DM&EO	District Monitoring and Evaluation Officer
DPMU	District Programme Management Unit
GOI	Government of India
HMIS	Health Management Information System
ICTC	Integrated Counselling and Testing Centre
IPD	Indoor Patient department
LHV	Lady Health Visitor
MIS	Management Information System
MO	Medical Officer
MoHFW	Ministry of Health and Family Welfare
MPW	Multipurpose Worker
NHM	National Health Mission
NRHM	National Rural Health Mission
OPD	Out Patient Department
PHC	Primary Health Centre
PIP	Programme Implementation Plan
PRC	Population Research Centre
SDH	Sub-District Hospital
SHC	Sub-Health Centre
WHO	World Health Organization

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Knowledge, Attitude and Practice (KAP) of HMIS among Health Officials in Selected Districts of Madhya Pradesh

1. Introduction

Health management information system (HMIS) is a process whereby health data are recorded, stored and processed for policy-making, planning, implementation and evaluation of health programs. The system is crucial for evidence-based policy and informed decision-making at all levels from national down to the institutional levels. Evidence-based decision making is critically important for the appropriate use of scarce resources particularly in resource limited settings. The states like M.P. and Chhattisgarh have made progress on the service delivery in inaccessible, poor and urban areas by introducing programmes and interventions. However, the service delivery data is unable to transform into usable information for decision making and informed policy initiatives.

The HMIS in most of the resource limited settings are inefficient and are greatly affected by unreliability of data resulting from underreporting, misreporting and non-reporting. In such situations key health decisions are often made on the basis of crude estimates of disease and treatment burdens and mostly do not give accurate indication of either success or failure of health intervention. The problem of unreliability of data mainly linked to lack of knowledge and/or proper training and practice among the health workers, which is further manifested by insufficient analysis skills, training and lack of initiative for using the available information. Lack of systematic approach towards effective HMIS implementation is a major obstacle.

Asangansi (2012) studied the institutional logics in HMIS implementation and discussed the situations that lead the success or failure in HMIS implementation and resolution of various difficulties. It was argued that, for success of any large scale and long term HMIS implementation decentralized, ownership-based and network centric approach should be adopted instead of vertical, performance centric and hierarchical approach.

A study by Simba and Mwangu (2005) in Tanzania found that reducing the number of steps in compiling and transcribing data from one register or form to another can significantly improve the quality of the routine data collection system. It also suggested

importance of data validation and strict supervision of data collectors in minimizing errors in a routine data collection system.

Studies have also found that lack of completeness and accuracy of HMIS data at facility level, multiplicity of health data capturing, minimal use of HMIS information in review meetings, lack of HMIS data analysis, poor quality of HMIS data are some of the major impediments in effective HMIS implementation WHO (2011), Bodavala (2012). A study of HMIS in Kerala by Harikumar (2012) found facility level management functions in terms of governance, planning, training, supervision and quality control with respect to HMIS implementation was very low.

Samal and Dehury, (2016) in a small sample study in Assam found that officials responsible for HMIS implementation considered it very useful for data collection, planning at various levels, tracking maternal and neonatal deaths, institutional deliveries and also as a health facility monitoring tool.

A study by Omambia and Odhiambo-Otieno (2016) on HMIS implementation in a Kenya hospital found that organizational factors significantly influence HMIS implementation and two factors: level of management and duration of employment were significantly associated with technical and individual factors affecting HMIS implementation at Kenyatta National Hospital (KNH). Study recommended the need for improving current infrastructure, continuous updation of current technology for HMIS implementation in order to find new ways of managing health problems in order to attain international standards.

Recent studies done by PRC based on reported HMIS data and field visits by PRC officials during PIP monitoring in various districts, it was observed that data is being reported and compiled on various services in many different formats. This shows the urgency and necessity of the data. However, most of these reports are never verified or looked into correctness, completeness and consistencies at the data generation level. Further, records maintenance is found to be poor at all levels from where the data in these reports comes.

In this backdrop it is necessary to assess the readiness of the health care providers and programme managers about HMIS implementation and utilization of HMIS data for planning and monitoring of health services.

2. Objectives

The study objectives are as follows –

1. To assess the training and knowledge on HMIS among health officials and paramedical staffs
2. To study the attitude towards HMIS reporting.
3. To study the practices of reporting, analyzing, feedback on HMIS
4. To assess the extent of HMIS data use at health institutions.

3. Study Design and Sample

Based on the HMIS data quality in terms of timeliness, percentage filled (non-zero and including zero values), number of validation errors and completeness of information, Sagar and Narsinghpur districts were selected. One block from each district – Malthon from Sagar and Kareli from Narsinghpur district was selected based on the availability of BPMU staffs and health workers at all level (CHC, PHC and SHC) to ensure the maximum coverage of the sample. In each of the selected district DH and one CHC, one PHC and 6-7 SHCs were selected randomly from one selected block. All the MOs, BPM, supervisors, health workers and data entry operators were interviewed using semi-structured questionnaire. Besides this, district level officials in CMHO, DHO and DPMU were also interviewed to assess the implementation issues of HMIS. Data collection of the study was done in January, 2018. Number of officials and health staffs interviewed at various types of health facilities are given in the following table.

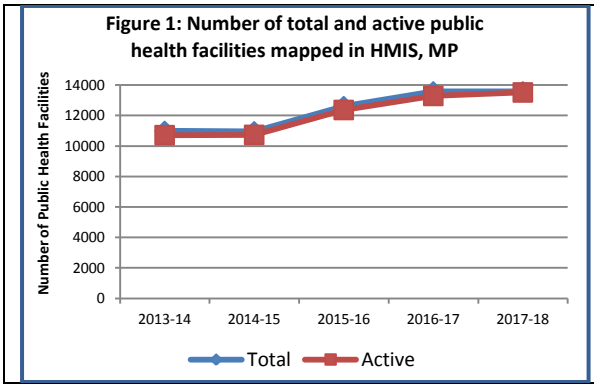
Health facility type	Sagar	Narsinghpur
DH	20	25
CHC	10	14
PHC	9	5
SHC	15	11
Total	**54**	**55**

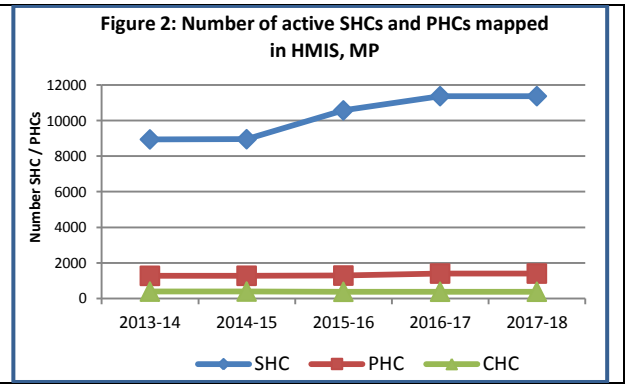
4. Status of HMIS

HMIS has been implemented across the country in the year 2009 at district level and gradually it was rolled out for health facility level reporting. Under HMIS different reporting tires are established from health facilities to district, state and up to national level. Information that is to be reported in HMIS is also categorised in monthly, quarterly and annual HMIS reports. The source of health services and infrastructure data is health facility. Data on population, availability of HR, training and drug stock is supposed to be reported on

quarterly basis from district level. The data received from health facility is compiled at district level on monthly, quarterly and annual basis to form state level reports which are compiled for national level reports.

By the end of year 2013 almost all the health facilities in Madhya Pradesh have been mapped for facility level reporting and majority started reporting monthly MIS by April, 2014. Figure 1 shows nearly 23 percent increase in total mapped public health facilities during 2013 to 2018 in M.P. from 10992 to 13584. Total number of active health facilities i.e. heath facilities which report under HMIS consecutively at least for 3 months, increased from 10715 to 13518, an increase of 26 percent during this period.





Total number of active SHCs increased from 8945 to 11378, nearly 36 percent during 2013 to 2018. During same period increase in number of PHCs was 10 percent and number of CHCs remained constant (Figure 2). This translates into training need for equal or more number of staff in HMIS and required infrastructure.

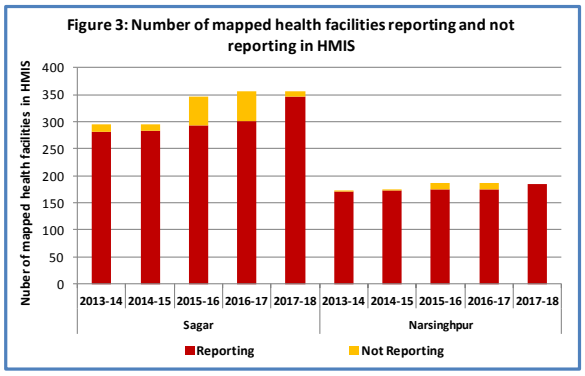
Table 1 shows universal reporting of facility level HMIS during 2013 to 2018. Percentage of SHCs reporting under HMIS decreased from 99 percent in 2013-14 to 83 percent in 2016-17 and further improved in the subsequent year. Reporting of monthly performance under HMIS by SDH has decreased from 100 percent in 2014-15 to 83 percent in 2017-18. Likewise proportion of CHCs reporting monthly MIS is 86 percent in 2017-18. It is important to mention that total active SDHs and CHCs are 84 and 379 respectively.

Table 1: Proportion of active health facilities reporting monthly MIS under HMIS, MP

Year	SHC	PHC	CHC	SDH	DH	All	As on
2013-14	99.3	89.1	92.2	91.8	100.0	97.8	09 Oct, 2015
2014-15	99.6	90.5	97.4	100.0	100.0	98.4	15 Feb, 2016
2015-16	84.8	98.5	98.9	98.7	100.0	86.8	15 May, 2017
2016-17	82.6	91.4	98.2	89.3	100.0	84.1	14 Mar, 2018
2017-18	98.1	91.3	86.0	83.3	100.0	96.9	14 Mar, 2018

Source: Computed from status of data reporting (Facility wise), HMIS. https://nrhm-mis.nic.in

Status of HMIS reporting by health facilities in Sagar and Narsinghpur district shows that majority health facilities were reporting under HMIS including new health facilities that were added gradually during 2013 to 2018. Figure 3 shows about 18 percent of health facilities existing and new combined did not reported in HMIS during 2015 to 2017 in Sagar district.



District quarterly reports provide data about training of health personnel on clinical and programmatic issues, programme managers on management and public health issues, paramedical staff on MCH, family planning, ARHS etc..However, with respect to other paramedical staff - statistical officers, assistants, CDPO and AWW, only number is reported without any details of domain of training. A typical quarterly data reporting under HMIS is depicted annexure 1.

Data on HMIS training to medical officer, programme managers at DPMU and BPMU officials, paramedical staffs and other paramedical staff is not reported in district quarterly MIS. Table 2 shows number of trained MIS/Data person and statistical officers in Sagar and Narsinghpur district as reported in quarterly district MIS report. It can be seen that there is absurd reporting about the availability of training and of MIS/Data personnel and statistical officers in the two surveyed district and in the state.

Table 2: Availability of MIS/data personnel at BPMU and statistical officers reported in quarterly district MIS under HMIS, MP

	MIS/Data Personnel			Statistical Officer		
	Sagar	Narsinghpur	MP	Sagar	Narsinghpur	MP*
2013-14	15	6	25	0	0	--
2014-15	--	6	35	--	0	0
2015-16	--	6	--	--	0	
2016-17	11	6	133	2	0	--
2017-18	--	0	--	--	0	--

*Source: Compiled from quarterly HMIS reports – district-wise and state level https://nrhm-mis.nic.in. * In state level HMIS, MIS/Data manager is reported*

It is pertinent that adequate number of trained persons for reporting, analysing and decision making based on HMIS data is a prime requirement. Successful implementation of HMIS can only be achieved by capacity building of existing as well as new health staffs.

5. Background characteristics of respondents

To assess the level of awareness and understanding of data among different levels of health workers, service providers and programme managers a knowledge, attitude and practice (KAP) study was done. A semi-structured interview schedule was administered to assess the awareness about HMIS data and its utility, attitude towards HMIS data reporting and regularity in forwarding data. The study also assessed practices related to collection, compiling and cross verification of HMIS data at different levels and utilization of HMIS data for planning and monitoring purpose.

Overall 109 health personnel, including CMHO, civil surgeon, DPMU officials, BMO, supervisory staff, paramedical staffs and data entry operators were interviewed. Background characteristics of the respondents are given in Table 3.

Table 3: Percentage distribution of respondents by background characteristics by district

Background Characteristics	Sagar N=54	Narsinghpur N=55	Total N=109
Place of posting			
District Hospital/CMHO office	37.0	45.5	41.3
CHC	18.5	25.5	22.0
PHC	16.7	9.1	12.8
SHC	27.8	20.0	23.9
Designation			
Programme Manager	5.5	12.7	9.2
Facility In-charge / Specialist	3.7	1.8	2.8
Medical Officer	1.8	5.5	3.7
LHV / Supervisor	3.7	10.9	7.3
ANM/MPW/Staff Nurse	55.6	41.8	48.6
Lab Tech/Pharmacist/Radiographer	9.3	12.7	11.0
Data entry operator	13.0	7.3	10.1
Others	7.4	7.3	7.3
Educational level			
High School	11.1	5.5	8.3
Higher Secondary	16.7	14.5	15.6
Graduate	22.2	21.8	22.0
Medical Graduate	3.7	3.6	3.7
Post Graduate	20.4	40.0	30.3
Diploma	25.9	14.5	20.2
Work Experience			
≤ 5 years	22.2	27.3	24.8
> 5 years	77.8	72.7	75.2
Tenure in present health institution			
< 3 years	22.2	34.5	28.4
3-5 years	27.8	27.3	27.5
> 5 years	50.0	38.2	44.0

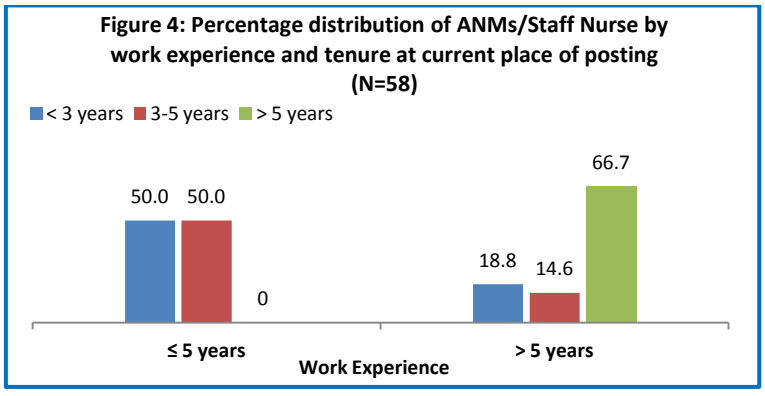
The study has covered respondents from thirteen different sections in various health care institutions which are supposed to report under HMIS. These include maternal health, child health, OPD/IPD, surgical department, SNCU, NRC, Pathology, AYUSH, Pharmacy, RNTCP, Blood bank and drug store.

About two-fifths respondents were posted at district hospital / CMHO office. This includes health care providers and programme managers including CMHO, civil surgeon, DMP, DM&EO, specialist, medical officer and staff nurse. Place of posting of one-fourth of respondents from Narsinghpur district was CHC.

Nearly one-fourth respondents were posted at SHC, majority were ANMs and only few were male-MPW. Nearly half of the respondents were ANM/MPW and staff nurse. It is imperative to mention that most of the health care services reporting under HMIS data are done by ANM and staff nurse for their respective sections such as maternal care, child health including immunization, family planning, IPD services etc.

Nearly one-third of respondents have studied up to post graduate level, this also include post-graduate medical officers and specialists. Nearly one-fourth of respondents in Sagar district have education up to higher secondary level and another one-fourth have completed their diploma level education.

Nearly two-fifths of all the respondents were posted at the current place of posting for more than 5 years. Among ANM/Staff nurse nearly three-fifths have more than 5 years of work experience and were posted at current place for more than five years (Figure 4).



It is imperative to mention that majority staffs involved in providing health care services at primary and secondary level health institutions are also responsible for reporting of performance and services delivery data under HMIS. Perspectives of health care

providers at primary and secondary care institutions are important for understanding the implementation issues of HMIS.

6. Training and awareness of HMIS

HMIS is a paradigm shift from conventional reporting structure to health institution based reporting of health care services and health events. For complete coverage and implementation of HMIS it was envisaged that health care providers, programme managers and key officials at district and state level should be adequately trained in data reporting, retrieving reported data and analysis of reported HMIS data for local level planning, monitoring of health care service utilization and assessment of health status of population at micro level. This section portrays the situation of training of respondents and their level of awareness about HMIS.

At the outset it is important to mention that in Sagar district there is no district monitoring and evaluation officer (DM&EO) posted. District community mobilizer (DCM) has been given additional responsibility of DM&EO. A dedicated unit for HMIS is of utmost importance for all the data related requirements at district as well as state level. It is observed that in the absence of dedicated data unit, necessary training activities for HMIS are grossly affected. As per the approved PIP for the state, every year all the districts are required to conduct at least two rounds of training on HMIS at district level and two rounds of training at all the block headquarters. In both the districts regular training on HMIS was not conducted in any of the block headquarters.

Table 4 shows the status of training and awareness of respondents about HMIS. None of the respondents in both the districts have ever received any formal training on HMIS of at least one week duration. For effective implementation of HMIS, prior knowledge of computer based data entry among health personnel can be a facilitating factor. The study found that only one-fourth of respondents have some training on computerized data entry.

Nearly all the respondents posted at SHC have affirmed that HMIS issues were discussed with them during their block level monthly review meetings. It is noteworthy to mention that state health department has initiated use of HMIS data for review of various health programmes at the state level. This has percolated up to district level reviews and further to block level review meetings.

Table 4: Percentage distribution of respondents by status HMIS training by district and place of posting

HMIS training	District		Place of Posting			
	Sagar N=54	Narsinghpur N=55	DH/CMHO N=45	CHC N=24	PHC N=14	SHC N=26
Trained in data entry using computer/ tablet	24.1	29.1	31.1	37.5	7.1	19.2
Discussed any issue regarding HMIS in monthly review meetings	57.4	54.5	24.4	66.7	64.3	96.2
Received 2-5 days orientation on HMIS	13.0	7.3	6.7	12.5	0.0	19.2
Received any formal training on HMIS of 1 week or more duration	0.0	0.0	0.0	0.0	0.0	0.0

In Sagar, nearly one-fourth and in Narsinghpur one-third respondents had some training in data entry using computer / tablet. Only one-fifth of all the respondents at SHC level, mostly ANMs, had some training on computer based data entry. Despite the fact that HMIS has been in place for more than a decade, the study observed, that only one in ten respondents has received orientation of 2-5 days duration on HMIS. Only 11 respondents have received orientation about HMIS. This shows inadequacy of training and orientation on HMIS among health staffs.

HMIS has been designed as computer intensive data capturing system. In many states computer and internet availability at PHCs have facilitated HMIS data reporting and thus improved timeliness and completeness of HMIS data reporting. It is understood that basic training in computer based data entry is necessary for augmenting health reporting under HMIS. It is imperative to mention that ANMs are being trained in capturing RCH services data through ANM online (ANMOL) platform using tablets. In Madhya Pradesh, ANMOL has been piloted in 14 districts.

Definition of HMIS: Knowledge about HMIS was assessed by asking respondents about definition of HMIS, type of reporting formats etc. Out of 109 respondents nearly two-third defined HMIS in their own words. Most of them defined HMIS as a tool for collection of monthly data on health care services. Primarily respondents used words or phrases such as “monthly report”, “monthly reporting of data on MCH etc.”, “monthly information”, “monthly progress” etc. to define HMIS. Few respondents recognized HMIS as a software for reporting, compilation, monitoring of health related data. It was observed that majority

respondents have no idea about structure of HMIS, its operational dimensions, required infrastructure and its role in monitoring, supervision and planning.

HMIS was defined by different level of health personnel as they perceived. Definitions varied from 'online health management', 'improvement of information system', 'facility level reporting of health services'. Few respondents also highlighted HMIS has improvement over conventional reporting system and termed it more convenient system.

Types of Reporting Formats in HMIS: More than one-third respondents did not know about different types of formats used in HMIS. It can be seen from Table 5 that 69 and 77 percent respondents told monthly reporting format as part of HMIS in Sagar and Narsinghpur districts respectively. One-third respondents, mainly paramedical staffs, considered other types of reports sent through respective online MIS such as NRCMIS, MWMIS, DDCMIS etc. as part of HMIS.

Table 5: Percentage distribution of respondents by different dimensions of knowledge of HMIS

Knowledge of HMIS	Sagar	Narsinghpur
	N=54	N=55
Booklets / Reports in HMIS*		
Annual infrastructure	13.8	17.1
Quarterly Financial	0.0	2.9
Monthly MIS Facility	69.0	77.1
Monthly Stock	6.9	8.6
Monthly consolidated	13.8	5.7
Other	34.5	31.4
Don't Know	42.61	34.5
HMIS is important		
Yes	68.5	71.0
No-Response	31.5	29.0
Understand all HMIS Items		
Yes	59.3	69.1
No	40.7	30.9

**Total exceeds 100 due to Multiple Responses*

Data items in HMIS: When asked whether respondents understood all the data items in the HMIS formats nearly three-fifths respondents gave an affirmative reply. However, when it came to explaining the number of data items in different HMIS formats none of the respondents including DM&EO could specify number of items in the SC, PHC, CHC, DH or other HMIS reporting formats. Nearly four-fifths of respondents did not know about number of data items in HMIS reporting formats. It was observed that in both the districts,

paramedical staffs such as staff nurse, lab technician, pharmacist, feeding demonstrator, supervisors and data entry operators who are engaged in HMIS reporting had no information about number of data items in HMIS formats.

Zero value and Blank in HMIS: Among all the respondents less than two-thirds (Sagar: 59 percent; Narsinghpur: 55 percent) said that they understand the meaning of zero value and blank in HMIS data. Nearly one-third respondents did not know the difference between a zero value and blank in data. Eleven percent respondents did not answer the question. Respondents defined meaning of a zero value and a blank in HMIS data in their own way. Few respondents said that both zero value and blank have same meaning. Some said they never keep any data item blank. Few respondents said that they don't know the meaning of blank. It may be mentioned that a zero means services available at a health facility but services not taken in a particular month and blank indicates non-availability of particular services in the facility.

Draft and Forward Report in HMIS: Regarding draft and forward HMIS reports only 20 percent respondents reported that they could distinguish between draft and forward report, more than 65 percent replied in a negative i.e. they did not know the difference and 15 percent did not answer the question. More than three-fourths of respondents in Sagar district did not know the difference in a draft and a forward report. Majority DEOs were able to differentiate between a draft and a forward report. Respondents described draft HMIS report as 'report prepared before finalization', 'it can be changed', corrections can be made', 'before validation check report is called draft', 'draft is prepared at facility level'.

Describing forwarded HMIS report, respondents said 'Reporting completed work', 'forward report cannot be changed or modified', 'after sending HMIS report to higher level it is called forward report'. A few among DEOs and ANMs said that there is no concept of draft or forward report in case of online HMIS reporting. It is noted that since the introduction of new HMIS format, facility for offline reporting and uploading data on HMIS portal is not available and all the reports has to be uploaded through online entry. It is important to mention that none of the BMO, MO or facility in-charge were aware about draft and forward mode of HMIS reporting.

Nearly four-fifths of respondents answered the question regarding where the HMIS reports are to be sent or who can access the HMIS report. Programme managers said that

HMIS data should be available to all the stakeholders for all the facilities. It is generally sent to state level and then forwarded to central level. Civil Surgeon at Narsinghpur said – "Earlier in Mandla I used to get feedback on HMIS report, but now here at Narsinghpur I don't have any idea". BMO Malthon said – "HMIS data is sent to Centre, State and Data managers". Facility in-charge and specialists were not aware where the HMIS data is to be sent. One specialist in SNCU, Narsinghpur said that SNCU data is sent to CMHO office.

ANMs and Staff nurses said that HMIS reports are sent to block level and from there it is sent to state level. DEOs said that after online uploading, HMIS data can be accessed from district, state and at central level for all the health facilities and data is compiled by the district M&EO. Lab technician, pharmacist, radiographer and other technician cadre responded that they give their data to DEO or the CMHO office. They were not aware about where the HMIS data is sent afterwards.

Probable users of HMIS data: Nearly four-fifths respondents (Sagar: 78 percent; Narsinghpur 82 percent) are aware about the probable users of HMIS data. Majority in Sagar district responded district level programme managers as the probable HMIS data users. In Narsinghpur 62 percent said national level programme managers as the user of HMIS data. Local facility level programme managers / facility in-charge as HMIS users was reported by 54 and 44 percent respondents in Sagar and Narsinghpur districts respectively (Table 6). It is interesting to note very few respondents said that facility level health committee as probable user of HMIS data.

Table 6 Awareness among respondents regarding users and frequency of HMIS reporting

	Sagar (N=45)	Narsinghpur (N=45)
Probable users of HMIS data*		
Health Manager at Facility Level	54.4	44.4
Facilities health committee/RKS	4.8	4.4
Health Manager at District Level	61.9	40.0
Health Manager at State /National Level	57.1	62.2
Other	59.5	51.1
Frequency of HMIS reports**#		
Yearly	1.9	1.8
Half yearly	1.9	0.0
Quarterly	3.8	0.0
Monthly	92.5	85.4
Don't know	5.6	14.5

**Total exceeds 100 due to multiple responses; # Sagar (N=54), Narsinghpur (N=55)*

Frequency of HMIS reports: Majority respondents (Sagar: 93 percent; Narsinghpur : 85.4 percent) in both the districts were aware that HMIS data should be sent every month to higher level authorities. Six and 15 percent respondents in Sagar and Narsinghpur respectively did not know about the frequency of sending HMIS data to higher authorities. It may be mentioned that except monthly HMIS data reporting format, all other reporting formats have not been introduced below district level health facilities. Data on quarterly physical and financial, annual infrastructure HMIS formats are directly compiled and reported by the district level authorities. Respondents only from CMHO/DPMU and BMO were aware about other reporting formats and its frequency of reporting to higher authorities.

7. Attitude towards HMIS Data

Respondent's attitude towards HMIS and its use was ascertained by questions about its importance and worthiness, continuity, usability beyond district level and higher authority and requirement of its simplification. Table 7 shows the percent distribution of respondents by district and facility type they serve.

Worthiness of HMIS: In all about 70 percent of the respondents in both the districts expressed that HMIS is important given the time and resources spent on data collection, analysis and its use for monitoring and planning. Only about half of the respondents at DH / CMHO consider HMIS as worthy. For majority respondents it was the ease of reporting which signifies the importance. Respondents said – 'Many information is now reported in a single format', 'It is easy to see data at one place for all the facilities', 'all data of each facility is obtained regularly', 'report is sent properly nothing is missed', 'this is the only source of data reporting so everything depends on HMIS'.

Respondents from periphery said – 'HMIS is very important as a proof of our work', 'our work can be monitored against the target', 'HMIS is used to track and compare our work'. They also said – 'this is important because there is no other option to get all the data for monitoring', 'we can see how many persons are getting services', 'it shows improvement required at facility'. Many respondents also recognized importance of HMIS for monitoring purpose. Respondents said – 'Management can be done properly', many decisions can be done based on HMIS data', 'monthly review is done from HMIS data', 'this data is important

for policy making', 'this gives information of all indicators', 'we get data about services give which can be reviewed so than we can make all types of plan'.

Importance of Continuing HMIS: Regarding opinion about importance of continuing HMIS and its utility majority (78 percent) said that continuing HMIS is important. Similarly about 90 percent respondents from periphery institutions consider HMIS as important and should be continued. It is noted that nearly 40 percent respondents from DH/CMHO did not respond about the continuity of HMIS reason may be lack of orientation about HMIS.

Use of HMIS at facility level: Regarding perception of data use in health facility less than half of respondents in Sagar said that HMIS is not meant for use only at higher level. Similarly, in Narsinghpur 60 percent respondents considered that HMIS use is not restricted to higher level. Thirty percent more respondents at SHC level than DH/CMHO level considered HMIS is not limited to higher level use. Nearly one-fourth respondents did not know whether HMIS is intended for higher level authorities. Many respondents at PHC and SHC level asserted that HMIS is predominantly used for review of their work performance. For them use of HMIS is equally meaningful at facility level and also higher level.

Table 7: Attitude of respondents towards HMIS

		District		Facility Type			
		Sagar N=54	Narsinghpur N=55	DH/CMHO N=45	CHC N=24	PHC N=14	SHC N=26
HMIS is worthy	Yes	70.1	70.9	53.6	91.7	78.6	80.8
	Don't know	14.9	1.8	24.2	0.0	0.0	0.0
	No-Response	15.0	27.3	22.2	8.3	21.4	19.2
HMIS should continue	Yes	74.1	81.8	60.0	91.7	85.7	92.3
	Cannot say	26.0	18.2	41.0	8.3	14.3	7.7
HMIS is for only higher level use	Yes	24.1	23.6	24.4	29.2	28.6	15.4
	No	46.3	60.0	42.2	58.3	42.9	73.1
	Don't Know	29.7	16.4	33.3	12.5	28.6	11.5
HMIS need simplification	Yes	18.5	10.9	8.9	16.7	7.1	26.9
	No	42.6	61.8	33.3	58.3	78.6	65.4
	Cannot say	38.9	27.3	57.7	25.0	14.3	7.7

HMIS needs simplification: Less than 20 percent respondents felt that HMIS need simplification in terms of data definition and also reduction in number of data items. It was reported by 27 percent respondents at SHC level that simplification of HMIS data should include, removal of data about services which are not part of SHC services. ANMs were of

opinion that additional columns for cumulative data should also be included in the monthly HMIS format. It is noted that more than half of the respondents said that they cannot say anything about the simplification of HMIS. Respondents at DH reported that most of the HMIs data items are also reported through other reporting formats or online software and all such data reporting formats should be made part of HMIS for simplicity.

8. Practices pertaining to HMIS

The present practices in HMIS data collection, verification, analysis, feedback were gauged from different respondent to determine how awareness and perception about HMIS is actually translates into practice. Table 8 provides distribution of respondents regarding information on various practices followed for HMIS reporting.

Recording data for HMIS: Regarding practices about collecting and recording health service data for reporting in HMIS, it was found that all the service providers in Narsinghpur district record health service data while giving health services. It is important for health workers to record data immediately after measuring health parameters. In facility level HMIS reporting formats pathology, ANC, delivery, immunization and OPD and IPD related services has to be recorded during services for accurate and complete reporting. Various registers are used for recording services and data for services given in a month is counted and reported in HMIS.

Preparing HMIS report: in all 43 percent respondents in Sagar and 33 percent in Narsinghpur informed that data entry operators prepare HMIS reports. It is pertinent to mention that in DH the HMIS reports and all other reporting which is sent to district or higher authorities are prepared by DEOs. A facility type-wise distribution revealed contrast between DH and SHC. More than four-fifths of respondents prepare HMIS reports at their own at SHC, whereas, three-fourths of respondents at DH informed that DEO prepare HMIS reports for the DH. At CHC and PHC, proportion of respondents saying that HMIS reports are prepared by themselves or by DEOs ranges between 23 to 36 percent.

Cross-checking HMIS reports with register: For any data management system, correctness of reported data is of paramount importance. In HMIS all the reported data need to be verified and validated through systematic checks and also through periodic checking with the primary registers. Majority respondents are not aware about the online validation of HMIS data reported by various health facilities. However, physically cross-checking of data

reported in HMIS and matching registers with HMIS reports is a routine practice, particularly at periphery level health institutions. It was observed that 72 percent respondents in Sagar and 56 percent in Narsinghpur affirmed that data reported in HMIS is cross-checked for correctness and completeness.

Table 8: Practices prevailing on HMIS

	Sagar	Narsinghpur	DH	CHC	PHC	SHC
Record data while giving service	N=38	N=40	N=29	N=14	N=10	N=25
Yes	89.5	100.0	93.1	85.7	80.0	100.0
No	10.5	0.0	6.9	14.3	20.0	0.0
Who prepares HMIS reports	N=53	N=49	N=41	N=22	N=13	N=26
Self	41.5	38.8	17.1	31.8	30.8	88.6
Supervisor/LHV/BEE	1.9	0.0	0.0	0.0	15.4	0.0
MO/Facility In-charge	0.0	2.0	0.0	7.1	0.0	0.0
DEO	43.4	32.7	73.1	36.3	23.1	3.8
Other	11.3	20.4	4.9	20.3	23.0	7.6
Don't know	1.9	6.1	4.9	4.5	7.7	0.0
HMIS reports are cross-check with registers	N=54	N=55	N=41	N=23	N=13	N=26
Yes	71.7	56.0	41.5	69.6	61.5	96.2
No	18.9	36.0	41.5	26.1	30.8	3.8
Don't know	9.4	8.0	17.0	4.3	7.7	0.0
Who cross-check HMIS reports*	N=38	N=30	N=18	N=17	N=8	N=25
Self check	46.2	62.1	55.6	52.9	75.0	44.0
Supervisor	56.4	58.6	11.1	64.7	37.5	92.0
Facility in-charge	17.9	10.3	22.2	17.6	0.0	12.0
District level officers	2.6	3.4	5.6	5.9	0.0	0.0
State level officers	7.7	3.4	16.7	5.9	0.0	0.0

** Total exceed 100 due to multiple response*

Further, 96 percent of respondents from SHC reported about cross-checking of HMIS reports which is highest among all the health institutions category. Only two-fifths of respondents from DH said that HMIS reports are cross-checked. Majority (92 percent) respondents from SHC said that HMIS reports are cross-checked by supervisor and also 44 percent said that they themselves cross-check HMIS reports. It is surprising that none of the PHC respondents identified facility in-charge as person who cross-check HMIS reports.

Cross checking of HMIS reports by district and state level officers is very important for maintaining quality of HMIS data. It also helps in providing crucial inputs for implementation of HMIS and also for addressing issues related to HMIS reporting. DM&EO of Narsinghpur asserted that present administrative system does not allow for effective

monitoring and mobility to visit periphery level health facilities for supervision and cross-checking of HMIS reports. Only 17 percent respondents at DH and six percent respondents at CHC said that state level officials visit for cross-checking HMIS. None of the respondents from PHC and SHC identified district and state level officials who cross-check HMIS reports.

Use of HMIS data: It is pertinent to understand the use of HMIS data that is reported from various health facilities. Table 9 presents the respondents' perspectives about present use of HMIS data. It is noteworthy that present facility based HMIS allow its extensive use at all levels of service delivery from SHC to the DH and programme managers from block to state and national level. It also provides key inputs to the policy makers for policy formulation.

Present Users of HMIS data: Regarding use of HMIS data nearly three-fifths said that health managers at state and national level are the frequent users of HMIS data, followed by health managers at district level and at facility level. It may be mentioned that majority

ANMs and respondents at PHC/SHC said that DPMU and BMPU officials enquire more frequently about submission of HMIS reports in case it is not submitted in due time. Regarding use of data at facility level, it is observed that none of the health facility in-charge has access to uploaded HMIS data of their own health facility due to lack of required training and infrastructure. In such situation data is not used at health facility level.

Table 9: Practices regarding use of HMIS data and inhibiting factors for HMIS use

	Sagar	Narsinghpur	DH	CHC	PHC	SHC
Who uses HMIS data*	N=39	N=44	N=28	N=20	N=10	N=25
Health Manager at Facility Level	43.6	50.0	28.6	65.0	40.0	56.0
Facilities health committee	2.6	11.4	10.7	10.0	10.0	0.0
Health Manager at District Level	51.3	45.5	35.7	50.0	50.0	60.0
Health Manager at State /National Level	59.0	75.0	78.6	80.0	70.0	44.0
Other	30.8	20.5	17.9	20.0	10.0	44.0
Purpose of HMIS data use*	N=40	N=43	N=30	N=21	N=9	N=23
Policy making	17.5	20.9	20.0	28.6	22.2	8.7
Planning and Budgeting	22.5	41.9	46.7	28.6	33.3	17.4
Evaluation of health programme	40.0	74.4	63.3	76.2	55.6	34.8
Other	62.5	39.5	40.0	52.4	33.3	69.6
Inhibiting factors for HMIS data use*	N=17	N=10	N=7	N=9	N=3	N=8
Existing structures of the health system do not encourage local utilization of data	23.5	10.0	28.6	0.0	33.3	25.0
Poor knowledge on the data analysis	23.5	20.0	14.3	22.2	33.3	25.0
Poor managerial skills	11.8	20.0	14.3	22.2	0.0	12.5
Poor quality of data	5.9	10.0	14.3	11.1	0.0	0.0
Other reasons	70.6	90.0	71.4	77.8	66.7	87.5

** Total percent exceeds 100 due to multiple responses*

Purpose of HMIS data use: Regarding the purpose of HMIS data use, 74 percent respondents in Narsinghpur said that HMIS data is used for evaluation of health programmes. Nearly one-third respondents said that purpose of HMIS data is for planning and budgeting. It is seen that proportion of respondents who said that HMIS data can be used for evaluation of health programmes varies from 76 percent among CHC respondents to 35 percent among SHC respondents. Use of HMIS data for policy making is reported by only 15 percent respondents which includes hospital consultant (DH Sagar), BCM, Supervisor, ANM, DEO and ICTC counsellor. It is observed that none of the district or block level programme managers identified policy making as purpose of HMIS data. It may be mentioned that at district and below level programme managers did not report purpose of HMIS data for policy making or for local level management since almost all the health programmes are implemented with little scope for local use of HMIS data.

Experience of use of HMIS data at facility: The respondents were asked whether they had any experience of use of HMIS data. Less than half (47 percent) respondents said that they had used HMIS data in one or more ways for various purposes. The responses indicate that HMIS data is used for assessing the drug and vaccine supplies, achievement of health service target, identifying service gap according to morbidity pattern, monitoring of services at grassroots and for HR management. Verbatim of experience of HMIS data use reported by the respondents are –

- "Admission, discharge data is used for Kangaroo Mother Care (KMC), family care, maternity, IDR based on SNCU data" (SNCU MO)
- "From report we can see that vaccination is not complete than we again vaccinate the remaining children"(ANM)
- "If Hb level is low than it is sign of anaemia, we take meeting of ASHAs and tell them about it" (ANM)
- "SHC, PHC, block level how many deliveries are conducted, all can be seen, information about critical patient is also available through HMIS" (DEO)
- "Target is fixed for facility, we collect that [HMIS] data and see the achievement" (ANM)
- "For gaining improvement in work, every day every month, all are involved, quality of work can be assessed [through HMIS]" (MPW)
- "Data about measles is reviewed, syphilis, blood transfusion etc., if reported by mistake then we correct it, we check the progress through HMIS, increased beds and lab facility according to number of deliveries" (BMO)
- "Govt does the planning as per HMIS data, comparison between states, districts, block is done, facility upgradation is done" (MO-PHC)

- "Used HMIS data to assess HIV test, ANC registration, iron sucrose increase, ASHA incentive for Hb<7 monitoring, BCG-Vit K gap" (BPM)
- "Compare previous report with coming [HMIS] report" (DEO)
- "For overall district monitoring on model health district, improving low performing indicators" (DH Consultant)
- "Assess target and achievement and improvement accordingly" (M&EO)
- "If PV positive then we see from which site malaria is spreading, than we see that area, if PF positive then we prepare slide for whole family" (Malaria technician)
- "Audit person match indent and distribution of drugs, not getting sanitary pad, no mattress" (Pharmacist)
- "Monitoring of target achievement, data is used for planning for future, monitoring of diseases and seasonal requirement are assessed" (Supervisor)

Factors inhibiting HMIS data use: Respondents were asked about the inhibiting factors in HMIS data use. It was seen that not many respondents could tell or identify the barriers in using HMIS data. Nearly one-fourth of respondents told about barriers for HMIS data use. Nearly one-fifth of respondents cited poor knowledge of data analysis, 15 percent also said poor managerial skills in use and analysis of HMIS data. Majority respondents cited lack of training about HMIS data, lack of knowledge about structure of HMIS data and non-availability of HMIS data any use.

Suggestions provided for improvement in HMIS: Respondents were asked about the suggestion for improving HMIS and its usability. Nearly three-fourth of all the respondents suggested various measures to improve HMIS. Majority (60 percent) among respondents suggested that training is the foremost necessity for improvement in HMIS. Nearly all the respondents from PHC and SHC stressed the need of training on HMIS for all health staffs. Apart from training, other suggestions were about adequate skill development at regular interval, simplification of formats, appointment of facility level data assistants and continuous monitoring and supervision of data.

Respondents said – 'only giving HMIS format is not sufficient, training is also needed', 'they (BPMU) ask us about the data errors [in HMIS] but not given any training', 'ANM should be trained on HMIS repeatedly', 'training on HMIS is needed and a permanent staff should be placed to see all the HMIS reports', 'training is required to understand the concept of HMIS data', 'Hindi translation of some data is not understood, it should be made simple', 'training is needed on filling-up [HMIS] formats'.

Some of the respondents also suggested to increase the HR, monitoring and corrections in HMIS reporting and said – 'number of DEO posts need to be increased', lack of dedicated DEOs and lack of focused responsibility on [HMIS] is to be addressed', 'HMIS language should be simplified and medical terminology should be less', 'data items should be less', 'all facilities should have user IDs to send HMIS data', 'data managers post should be there who can check HMIS reports'.

9. Summary and Recommendation

To understand the implementation of HMIS in Madhya Pradesh, two districts – Sagar and Narsinghpur were selected and a KAP study was conducted to assess the perspectives of health officials regarding training and knowledge, perception about simplicity and importance of HMIS and various practices prevailing on preparation, ensuring correctness and current use of HMIS data. In all 109 health officials including programme managers, medical officers, paramedical staffs, data entry operators and other support staffs have been interviewed through a semi-structured interview schedule. Status of HMIS in terms of coverage and key resources available for HMIS implementation is also assessed.

It was observed that since the year 2013, more than ten thousand health facilities have been reporting health services data though online HMIS portal. There are more than 8500 SHCs and about 1200 PHCs reporting health facility level services through HMIS. This translates into training need of more than twelve thousand health personnel in HMIS. The study has found that apart from monthly reporting of facility level MIS, quarterly and annual MIS and annual infrastructure data is also reported in HMIS. However, quarterly and annual MIS and health facility level infrastructure data is compiled and reported from district level reporting units or the DPMUs.

It was observed that in quarterly MIS, data regarding availability of trained health personnel is under reported and gross non-reporting is observed in both Sagar and Narsinghpur district as well as for the state as a whole.

More than half of the respondents have studied graduation and above in both the districts. Nearly three-fourths of respondents have been working for 5 years or more duration. Half of the respondents have been working at the current place of posting for more than 5 years in Sagar and in Narsinghpur about two-fifths respondents are posted for more than 5 years at the current place of posting. Nearly three-fifths of ANM and Staff

nurses who have work experience of more than 5 years, are also posted at current place of posting for more than five years. It is imperative to mention that health personnel who are posted at same place for more than 5 years should have been trained in HMIS.

It was found that about one-fourth of respondents are trained in data entry using computer/tablet. This proportion is only 19 percent among SHC respondents and 7 percent among PHC respondents. Nearly 60 percent respondents were informed about HMIS in their review meetings. Majority (90 percent) of health staffs have not undergone any formal training on HMIS in the form of 2-5 days orientation or 1 week training.

Two-thirds respondents defined HMIS in their own terms. Most of them consider HMIS as tool for collection, reporting and compilation of monthly data about services given at health facility. A few defined HMIS as software for monitoring of health data. Structure of HMIS, its operational dimensions, required infrastructure and its role in monitoring, supervision and planning is not known to majority respondents. Monthly MIS reporting format is the only tool known to majority respondents. It was observed that all other formats are compiled and reported only from the district and as such no data is recorded, collected or compiled for quarterly MIS or annual infrastructure formats at periphery level health institutions. This under reporting or non-reporting is not verified at any level.

Meaning of zero value and blank in HMIS data was known to about half of the respondents in both the districts. Difference between draft and forward HMIS reports was known to only one-fifth respondents. Majority respondents considered no difference in draft and forwards HMIS reports. Nearly two-thirds respondents were aware that HMIS reports are used by district and state level health managers.

Nearly 70 percent respondents consider that HMIS is important given the resources, time and its use in the present situation and also had a view that HMIS should be continued. Respondents at PHC and SHC level emphasized that HMIS is predominantly used for review of their work performance and its use is equally important at facility level and also at higher level. Less than one-fifth respondents were of the view that HMIS needs no simplification except medical terminology used in various data items and removing repeated reporting of same data through other reporting channels.

Majority respondents who are also service providers also record data for HMIS reports simultaneously while providing services. This ensures correct and complete recording and reporting of health services. Preparing HMIS reports for any health facility is a

challenging task particularly for DH and CHC. It was observed that DEOs are responsible for preparing HMIS reports. More than three-fourth respondents at DH said that DEOs prepare HMIS reports. In contrast 89 percent respondents at SHC prepare HMIS report at their own.

Correctness of HMIS data is ensured by cross-checking HMIS reports. Two-fifths respondents from DH and 92 percent respondents from SHC said that HMIS reports are cross-checked for any omission or errors in reporting. Cross-checking of HMIS reports is mainly done by district level officials and for SHC level data self checking and by supervisors.

PHC and SHC level respondents said that no district of state level officials cross-check HMIS data at their facility. It is important that verification and validation of HMIS data need to be done by district and state level officials to maintain quality of reported HMIS data. Majority respondents said HMIS data reported by them is used by district and state level officials and managers for evaluation of health programme, monitoring of functioning of health facilities. Some of the respondents also said that this data is used of policy making and planning and budgeting.

Study also sought to know the use of HMIS data by respondents. Nearly half of respondents informed that they have used HMIS data for one or other purposes. HMIS data is mainly used for assessing drug and vaccine stock management, for assessing health services achievement against the target, identifying services gap according to morbidity pattern and monitoring of services at periphery level health institutions and for HR management. It is found that use of HMIS data is not documented at any level for referencing the course correction or taking new initiatives, although, HMIS data is used for review meetings. The reason may be lack of proper training for local level programme managers and lack of support from state and district level officials and also lack of capacity building for effective use of HMIS data.

It was observed that lack of training about HMIS data, lack of knowledge about structure and interrelation of HMIS data and non-availability of HMIS data for any use are the major inhibiting factors cited by respondents. District level programme managers cited lack of encouragement from existing structure for local utilization of HMIS data because importance of HMIS data has not percolated and poor managerial skills as the hindrance for use of HMIS data.

The study has found that despite the huge resources being channelized for implementation of HMIS; recording, reporting and its utilization are uncorrelated. Process of

data generation in HMIS itself has become a huge task and an indicator of performance of health facility. In every PIP budget for two rounds of training on HMIS is sanctioned. HMIS training at district level and at all the blocks are essential at least twice annually. But in none of the visited districts this budget is utilized and trainings are held as evident from the study.

The state level data unit which is being monitored by the centre, should convey the importance of HMIS data at all levels. This message has yet to percolate at the district level.

DH Sagar has requested PRC for holding a special training for health personnel on HMIS looking to the requirements of data quality and its usage for programme monitoring. At Kareli block, PRC team, on request of BMO, conducted an orientation of ANMs and supervisors and other health staffs of CHC on HMIS. During the orientation it was observed that field supervisors are not at all aware of HMIS reporting and they are not part of any reporting and monitoring process based on HMIS. In Guna district, PRC team was part of an ongoing training session on HMIS.

Following recommendations are made based on study findings.

- There is an unmet need for training on HMIS. The district needs to address the training gaps. A formal training on HMIS in the form of 2-5 days orientation or 1 week training is essential for all levels of health institutions.
- HMIS training curriculum needs to be developed for each level of health facility and personnel.
- Training contents should have the complete structure of HMIS, process of HMIS, process of reporting of health services, and health events, guidelines for correct data reporting and interrelation of all the components in HMIS.
- Reporting in quarterly MIS and infrastructure need to be strengthened. Crucial information on number of trained personnel in HMIS and other services need to be captured correctly. Availability and reporting of base data on population, eligible couples etc. should be ensured and evaluated to assess the targeted services.
- Nearly 12000 health facilities report to HMIS on monthly basis. Monitoring of HMIS data reporting should be decentralized up to PHC level.
- ANMs at SHCs and MOs at PHCs need to be oriented repeatedly as large data is reported from these health facilities.
- Technical support of district level HMIS personnel for correctness and completeness of HMIS data reporting need to be done on priority basis. This will also ensure close monitoring of process of HMIS data reporting.
- State needs to provide at least viewing rights to all the PHCs for monitoring HMIS data based on some indicators such as morbidity and mortality reporting. This can be used for sector or PHC level review meetings. This will also give ownership of HMIS at periphery level health personnel.

- Many common data items on HMIS and other reporting channels need to be synchronized combined to mitigate repeated data reporting and variation in HMIS and other reporting channels.
- An online helpline and short videos on HMIS data entry, validation, cross checking, checking and data uploading and data viewing should be prepared which can be used by all the health personnel for training and information purpose at all levels. Use of local language should be the medium of instruction and should be encouraged to the extent possible.
- A core team of health worker and DEO in each district is essential who are trained in HMIS data and can resolve HMIS data issues.

10. References

Harikumar S, 2012. Evaluation of Health Management Information Systems - A study of HMIS in Kerala (Unpublished Dissertation), Achutha Menon Centre for Health Science Studies Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala (http://dspace.sctimst.ac.in/xmlui/bitstream/handle/123456789/2135/mph_6152.pdf?sequence=1 on 20.12.2017)

Ime Asangansi, 2012. Understanding HMIS Implementation in a Developing Country Ministry of Health Context - an Institutional Logics Perspective, *Online Journal of Public Health Informatics*, ISSN 1947-2579 * http://ojphi.org 4(3):e8, 2012

Janmejaya Samal and Ranjit Kumar Dehury, 2016. Perspectives and Challenges of HMIS Officials in the Implementation of Health Management Information System (HMIS) with Reference to Maternal Health Services in Assam, *Journal of Clinical and Diagnostic Research*. 2016 Jun, Vol-10(6): LC07-LC09

MoHFW, 2011. Understanding Health Management information System (HMIS)-Service Providers' Manual Vol.-I. National Rural Health Mission, Ministry of Health and Family Welfare, Government of India.

MoHFW, 2011. Understanding Health Management information System (HMIS)-Health Program Managers' Manual Vol.-II. National Rural Health Mission, Ministry of Health and Family Welfare, Government of India.

Ranganayakulu Bodavala, 2012. Evaluation of Health Management Information System in India: Need for Computerized Databases in HMIS. Takemi Fellow in International Health, Harvard School of Public Health Boston, MA 02115 USA (https://cdn1.sph.harvard.edu/wp-content/uploads/sites/114/2012/10/rp176.pdf, accessed on 06.01.2018

Salim M Omambia1, G.W. Odhiambo-Otieno, 2016. The Implementation Criteria of a Health Management Information System: A Case of Kenyatta National Hospital *International Journal of Scientific and Research Publications*, Volume 6, Issue 4, April 2016 ISSN 2250-3153

Simba D.O. and M.A. Mwangu, 2005. Quality of a routine data collection system for health: case of Kinondoni district in the Dar es Salaam region, Tanzania, *South African Journal of Information Management*, Vol 7 (2), June, 2005, (ISSN 1560-683X), Department of Information and Knowledge Management, University of Johannesburg.

WHO and Ministry of Health Uganda, 2011. Assessment of health facility data quality: Data quality report card Uganda, 2010–2011, Department of Health Statistics and Information Systems (HSI), WHO, Geneva and Resource Centre and Quality Assurance, Department of the Uganda Ministry of Health, and the Uganda WHO Office.

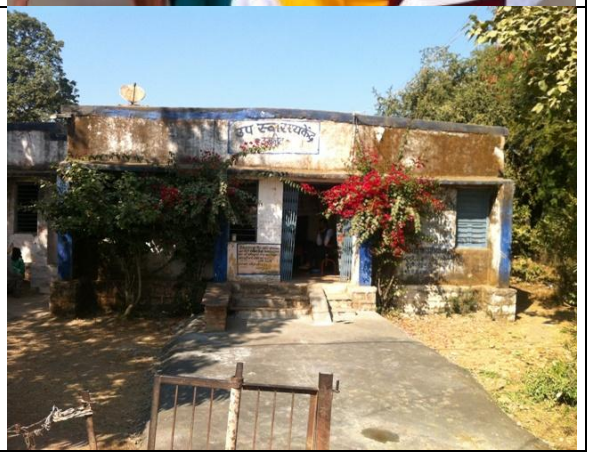
WHO, 2008. Advocacy, communication and social mobilization for TB control: A guide to developing knowledge, attitude and practice surveys, World Health Organization.

Annexure 1

Status of training reporting module in district quarterly HMIS report

Q3	**[Number of Doctors trained in]**
3.1	Life saving Anesthesia skills for EmOC
3.2	Obstetric Care & Management including Caesarian Section
3.3	Skilled Birth Attendant
3.4	No-Scalpel Vasectomies (NSV)
3.5	Minilap
3.6	Laprocsopic Sterlization (for Specialists)
3.7	Intrauterine Device (IUDs)
3.8	Blood Storage
3.9	Reproductive Tract Infections/Sexually transmitted infections (RTI/STI)
3.10	Integrated Management of Newborn and Childhood Illnesses (IMNCI)
3.11	Sick Newborn Care Unit (SNCU) training
3.12	Safe Abortion Services (MTP)
3.13	Adolescent Reproductive and Sexual Health (ARSH)
3.14	Infection Management and Environment Plan (IMEP)
3.15	Professional Development (CMO/ Dy. CMO/ SMO)
3.16	Others (Specify)
Q4	**[Number of GNM/ ANM/ LHV trained in]**
4.1	Skill Birth Attendants
4.2	Intrauterine Device (IUD)
4.3	Contraceptive update training
4.4	Integrated Management of Neonatal and Childhood Illness (IMNCI)
4.5	Facility Based Newborn Care (FBNC)
4.6	Home Based Newborn Care (HBNC)
4.7	Reproductive Tract Infections/Sexually transmitted infections (RTI/STI)
4.8	Infection Management and Environment Plan (IMEP)
4.9	Adolescent Reproductive and Sexual Health (ARSH)
4.10	Immunisation
Q5	**[Number of Block Programme Management Units (BPMU) Personnel Trained]**
5.1	Programme Managers
5.2	Accounts/ Finance Personnel (Including PHC)
5.3	MIS/ Data Personnel
Q6	**[Other para-medical staff, statistical officers/assistants and AWW]**
6.1	Statistical Officers
6.2	Assistants
6.3	CDPO
6.4	Anganwadi Worker (AWW)

Photographs from field visit in Sagar District



Photographs from field visit in Narsinghpur district