Data Quality Audit Report

7TH ROUND

Based on the data quality audit visits in 8 districts of Uttar Pradesh during 11-15 February 2020

PREPARED BY
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LIST OF ABBREVIATIONS

AdRO	Additional Research Officer
ANC	Ante Natal Care
CH	Child Health
CHC	Community Health Centre
CMS	Chief Medical Superintendent
CMO	Chief Medical Officer
DH	District Hospital
DEO	Data Entry Operator
DCH	District Combined Hospital
DPM	District Program Manager
DWH	District Women Hospital
DG FW	Director General Family Welfare
DG MH	Director General Medical Health
FP	Family Planning
FRU	First Referral Unit
HEO	Health Education Officer
HM	Hospital manager
HMIS	Health Management Information System
M&E	Monitoring and Evaluation
MH	Maternal Health
MO I/c	Medical Officer In charge
RSK	Rogi Sahayta Kendra
SHI	State Health Index
SN	Staff Nurse
JSSK	Janani Shishu Suraksha Karyakakram
UPHMIS	Uttar Pradesh Health Management Information System
UPNHM	Uttar Pradesh National Health Mission
UPTSU	Uttar Pradesh Technical Support Unit

Content

1. EXECUTIVE SUMMARY

Data quality audit is a supportive supervision approach with an objective to identify the data quality gap and suggest the corrective action for data quality improvement. In view of the same, the state data quality audit team was constituted in the month of January 2018 and six rounds of audit were conducted by the team in 129 block level and DH facilities of 43 districts till August 2019. The previous round of audit had also showed the sustainable improvement in the data quality of audited facilities.

The audit was conducted in 24 facilities (16 block facilities and 8 DH facilities) across eight aspirational districts which included Bahraich, Balrampur, Chandauli, Chitrakoot, Fatehpur, Shrawasti, Siddharth Nagar and Sonebhadra during 11-15th February 2020. It was repeated in the same 24 facilities of 8 aspirational districts where third round of audit was conducted during 4-6 July 2018 to understand the effect of audit as an approach for improvement in data quality. The data audit was conducted with the help of the revised structured tool comprised of 66 critical data elements covering antenatal care, delivery/newborn care & complication, family planning, child health, mortality details and hospital services. This covers all the data elements of ranking and NITI Aayog's SHI indicators with few additional critical indicators of state priority.

There are 24 data elements which are common over all rounds. There has been continuous increase in matching with source document from round first to seventh round. It increased from 57% in first round to 74% in 7th round of data audit. There has been 12 percent point increase from 3rd to 7th round which shows audit effect in aspirational districts sustained even after one and half year.

Different facilities and domains were having different data quality issues but some of the general reasons of data quality issues identified during audit include poor and non-uniform availability of source documents (only 54% of data elements of four major domains were having a provision in registers to record the information). One fourth of facility are still not having printed UPHMIS formats and 12 percent haven't printed HMIS format. Around one fourth of facilities have not assigned a nodal to review the data and its quality.

Non-functionality of validation committee is one of the major bottle necks observed during the data audit. It was observed that one fifth (20%) of the visited facilities (block facility and DH) did not conduct validation meeting during last quarter. Lack of understanding on some of the data elements (maternal and new born complication and ante natal care) was also identified as one of the reasons for low data quality during supportive supervision process with facility staff.

Training of block officials and staff nurses & ANMs emerged a big concern. Only Fifty percent block officials and 38% SNs and ANMs have received training on HMIS/UPHMIS format definition and compilation during last one year.

Based on the gaps identified, the action plan was developed for each of the audited facilities and shared with facility in charge for corrective actions. The action plan includes the gaps, suggestive actionable point, person responsible, and timeline. The feedback meeting was also held with all the blocks findings were shared for overall improvement in data quality of a district.

2. BACKGROUND

The availability of good quality data is critical for any program reviews, planning and prioritization. Uttar Pradesh has developed and implemented a robust data system which provides a holistic platform to obtain all the critical data required for the identification of low performing indicators, low performing geographies and factors associated with low/high performance of indicators.

In this regards, monthly facility wise government data portals (HMIS/UPHMIS) are the primarily reliable source for data use at all levels of health system and it is critical to have availability of high quality data. Moreover, UP Health dashboard (district and block ranking based) has also been developed based on HMIS/UPHMIS data and using by the health officials at different level for review and planning of health programs. Recognizing the criticality of reporting of quality data, the state has initiated the concept of data quality audit to improve the data quality and availability of the government data system (HMIS/UPHMIS).

Data quality audit is a supportive supervision approach to improve the data quality of the government data system by assessment of data quality issues at facility level and suggest corrective actions. This process includes the gap identification, joint problem-solving, hand hold support and capacity building. The primarily includes validating the reported data with source document, identifying the gaps and developing the capacity of facility staff on reporting of accurate data.

The state data quality audit team was constituted in the month of January 2018 and six rounds of audit were conducted by the team in 129 facilities of 43 districts till August 2019.

Data quality framework of factors affecting data quality

The complete process of correct reporting of data from service delivery to portal can be classified into 3 steps process, a*) Data recording, b) Data transfer and c) Data entry.* There are multiple factors at each step which may affect the process to ensure the reporting of correct data. The gap in any of the component at any step may affect the reporting of quality data *(Figure 1, Data Quality Framework)*

Figure 1 Data Quality Framework
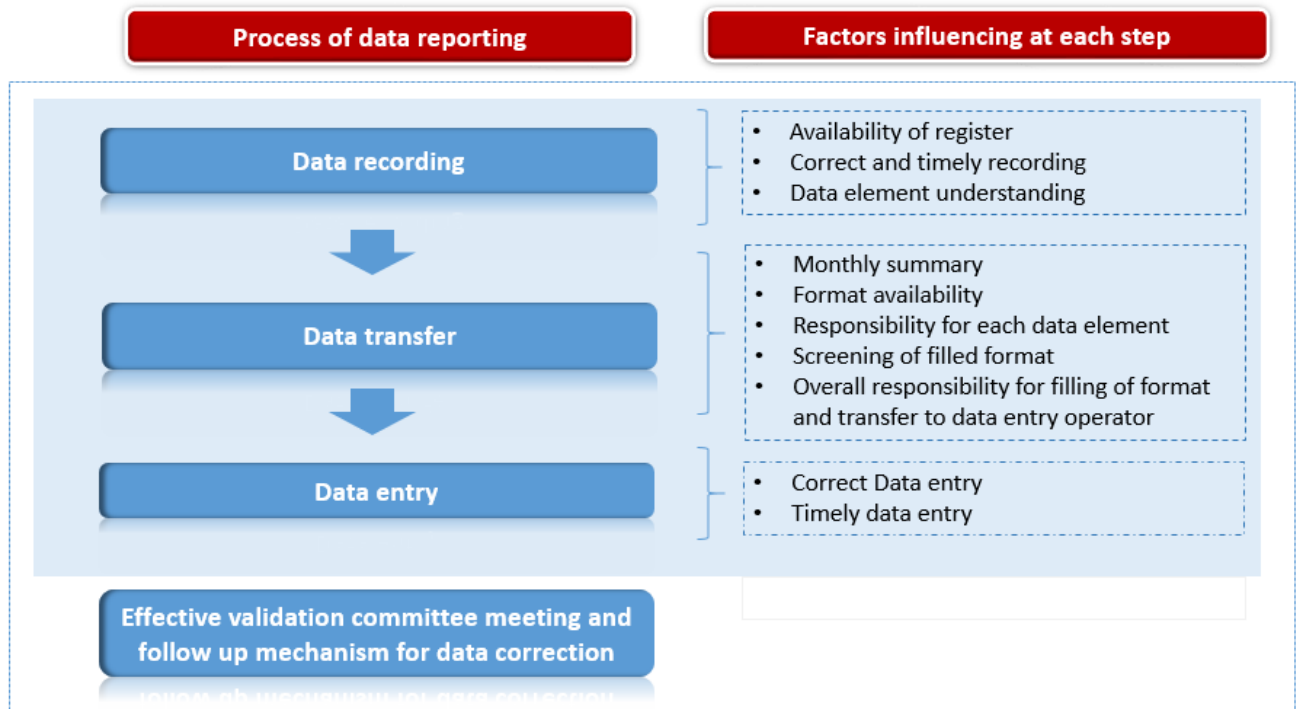
It is, therefore, important to understand the issues and challenges at each step so that effective measures could be taken to strengthen the data quality.

3. OBJECTIVES OF THE DATA AUDIT

The overall goal of the data audit activity was to ensure availability of quality data for decision making. Keeping in view the issues and challenges of data quality in HMIS/UPHMIS in the state following objectives have been decided for the audit activity:

1. To validate and improve the data quality of key critical data elements
2. To assess the system level gap in the reporting of quality data
3. To assess recording and source document availability for key critical data elements

4. METHODOLOGY

The state had issued a letter (पत्रांक- **SPMU/NHM/M&E/2019-20/25/9228-2**) dated February 6, 2020 for data audit visits by the state team in the month of February 2019.

4.1 Audit area and audit team

Eight teams were constituted for audit in eight aspirational districts comprises members from NHM, Directorate and UPTSU. The list of districts and details of team are given below in the Table 1.

Table 1: Data Quality Audit Team

Team	Team Members	Department	Date of Visit	Selected District
Team 1	Dr. D. K. Srivastava, ADRO	DGFW	11 to 13 February 2020	Bahraich
	Mr. Debnath, Div. PM Ayodhya	NHM		
	Mr.Arpit Srivastava,Cosultant(RI)	NHM		
	Mr. Raghunandan Puhan	UPTSU		
Team 2	Mr. Yogesh Chandra,ADRO	DGFW	11 to 13 February 2020	Balrampur
	Mr. Yogendra Yadav, SNCU Software Coordinator	NHM		
	Mr. Rahul Patel, Div. PM-Devipatan	NHM		
	Mr. Ishan Tripathi	UPTSU		
Team 3	Mr. Manoj kumar,ADRO	DGFW	11 to 13 February 2020	Shrawasti
	Mr.Bishambhar Dayal,(Const-MH)	NHM		
	Mr. Rakesh Chandra Verma, PC-NUHM	NHM		
	Ms. Charu Yadav	UPTSU		
Team 4	Mr. Dinesh, ADRO	DGFW	11 to 15 February 2020	Siddharth Nagar
	Mr. Arvind Pandey,Div PM-Basti	NHM		
	Mr. Gaurav Sahgal, Consultant-CP	NHM		
	Mr. Nazir Haider	UPTSU		
Team 5	Dr. I. C. Verma, ADRO	DGFW	11 to 14 February 2020	Chandauli
	Mr. Arvind Kumar Srivastava, Div. PM-Varanasi	NHM		
	Mr. Dinesh Pal Singh, PC-EMTS	NHM		
	Dr. Prahlad	UPTSU		
Team 6	Mr. Ved Prakash, ADRO	DGFW	11 to 15 February 2020	Chitrakoot
	Mr. Alok Kumar, Div PM-Gorakhpur	NHM		
	Mr. Jamal Ahmed, Program Coordinator	NHM		
	Mr. Anand Parihar	UPTSU		
Team 7	Mr. SVP Pankaj, DGM-M&E	NHM	11 to 13 February 2020	Fatehpur
	Mr.Virendra Pratap (ARO)	RHFWTC-LKO		
	Mr. Harit Saxena, Div. PM-Prayagraj	NHM		

Team	Team Members	Department	Date of Visit	Selected District
	Mr. Puneet	UPTSU		
Team 8	Mr. Uma Shankar Shukla	DGFW	11 to 15 February 2020	Sonebhadra
	Mr. Brijesh Mishra, Div. PM-Mirzapur	NHM		
	Mr. Akhilesh Srivastava, PC-FP	NHM		
	Mr. Neeraj	UPTSU		

Rational for Selection of Aspirational District:

The audit was conducted in 24 facilities (16 block facilities and 8 DH facilities) across eight aspirational districts which included Bahraich, Balrampur, Chandauli, Chitrakoot, Fatehpur, Shrawasti, Siddharth Nagar and Sonebhadra during 11-15th February 2020. The rationale to select aspirational districts again for data audit as follows:

- **Understand the effect of data quality audit:** It was repeated in the same 24 facilities of 8 aspirational districts where third round of audit was conducted during 4-6 July 2018 to understand the effect of audit as an approach for improvement in data quality
- **Priority districts:** Aspirational districts are high focus for GOI and the state to improve health services. It is important to ensure quality reporting of the same.
- **High indicator value**: High indicator value as compared to state average. Some ANC health indicators are detailed in Table 2.

Table 2: *ANC health indicators of aspirational districts and Uttar Pradesh based on HMIS data for April- December 2019.*

Indicators Name (%)	Districts Name								UP
	Chitrakoot	Fatehpur	Bahraich	Shrawasti	Balrampur	Siddharth Nagar	Chandauli	Sonbhadra	
Four or more antenatal care check-ups against total ANC registrations	95	83	81	85	86	80	88	91	75
ANC registered within the first trimester against total ANC registrations	79	84	67	76	71	69	81	73	57
Pregnant women (PW) registered for ANC against estimated pregnancies	100	100	100	93	100	76	96	80	100
PW having severe anaemia treated against PW having severe anaemia tested cases	100	86	84	86	89	38	86	80	34
PW tested for Haemoglobin 4 or more than 4 times for respective ANCs against total ANC registration	86	85	79	87	86	82	87	90	79

Table 3: *List of district hospital facilities selected for audit*

Sr. No.	District	Block	Facility	Facility HMIS code	Type of facility
1	Bahraich	Bahraich DHQ	District Women Hospital	427894	DWH
2	Balrampur	Balrampur DHQ	District Women Hospital	399609	DWH
3	Chandauli	Chandauli DHQ	PT K P T Distt.Combined Hospital Chandauli	400759	DCH
4	Chitrakoot	DHQ Chitrakoot	DCH	403471	DCH
5	Fatehpur	Fatehpur DHQ	District Women Hospital	397130	DWH
6	Shrawasti	DHQ Shrawasti	District Combined Hospital	435971	DCH
7	Siddharth Nagar	DHQ Siddharthnagar	District Combined Hospital	405694	DCH
8	Sonbhadra	Ravertganj	DCH Robertsganj	399919	DCH

Table 4: List of block facilities selected for audit.

Sr. No.	District	Block	Facility	Facility HMIS code	Type of facility
1	Bahraich	Jarwal	BPHC Jarwal	409997	BPHC
2	Bahraich	Mahsi	BPHC Mahsi	410012	BPHC
3	Balrampur	Reharabazar	BPHC Rehra Bazar	399585	BPHC
4	Balrampur	Heryasethghrwa	BCHC Sheopura	399604	BCHC
5	Chandauli	Barhani	BPHC Barahani	400727	BPHC
6	Chandauli	Sakaldeeha	BCHC Sakaldiha	400755	BCHC
7	Chitrakoot	Mau	BCHC Mau	323538	BCHC
8	Chitrakoot	Pahari	BCHC Pahari	462150	BCHC
9	Fatehpur	Fatehpur Bhittora	BPHC Bhitaura	397111	BPHC
10	Fatehpur	Fatehpur Dhata	BPHC Dhata	397115	BPHC
11	Shrawasti	Hariharpur Rani	BCHC Bhangaha	332173	BCHC
12	Shrawasti	Ikauna	BCHC Ikauna	332204	BCHC
13	Siddharth Nagar	Badani	BPHC Badhni	405674	BPHC
14	Siddharth Nagar	Itawa	BCHC Etwa	405681	BCHC
15	Sonbhadra	Ghorahawal	BCHC Ghorawal	399837	BCHC
16	Sonbhadra	Nagawa	BCHC Nagwa	477028	BCHC

4.2   Process

The data quality audit is a supportive supervision approach to improve the data quality of the government data system (HMIS/ UPHMIS). This process includes the hand hold support, joint problem-solving and capacity building.

The major steps to conduct the data quality audit includes following:

- **Identification of facilities** to be audited
- **Visit and conduct audit**: The audit includes the **matching of reported data value in HMIS and UPHMIS with source documents** and identify the reasons of identified gaps, if any.
- **Preparation and sharing of action plan** based on data quality issues identified with facility in charge. The action plan for each of the audited facilities was developed and attached as annexure 1.
- **Feedback meeting** with all the concerns responsible for reporting

4.3   Tool used for data audit

A structured tool comprised of 61 critical data elements used for seventh round of audit. It covers following domains *(Table 5)*:

Table 5 *Domains covered in data quality audit checklist*

#	Domain	# of data elements form HMIS and UPHMIS
1	Antenatal care	10
2	Delivery/newborn care & complication	21
3	Family planning	4
4	Child health	7
5	Mortality details	6
6	Hospital services	13
	Total	**61**

The data elements were selected considering indicators recommended by NITI AYOG's state health index, district/ block ranking, and current program priority.

The revised tool also captures system level gaps in ensuring reporting of quality data. This primarily includes format availability, validation committee, summary preparation, person responsible etc. Separate section was added on source document availability to understand the variation and availability of records across different facilities. The tool is attached as *Annexure 1*

The data quality assessment of data collected on tool was done on five major parameters defined as below:

- **% of matched-** Data elements reported value matched with the value recorded in source document.

- **% of over reported-** Reported value of the data element is greater than the value recorded in source document.
- **% of under reported-** Reported value of the data element is less than the value recorded in source document.
- **% of not able to audit-** Data elements for which team was not able to audit source documents were not available at facility

4.4   Data and period of audit

HMIS and UPHMIS reported data on UPHMIS portal for the month January 2020 was decided to be audited.

5. DATA AUDIT FINDINGS

A. Comparison over different rounds

There are 24 data elements which were common across over all seven rounds were compared to understand the change in data quality status across different rounds of data quality audit. Also, round 3 and round 7 of data audit was done on same set facilities of aspirational district. These data elements are spread across 7 different domains. The summary of data audit over different rounds are given below in Fig 2 and Table 6:

Fig 2 *Trend of matching of reported value with source document*
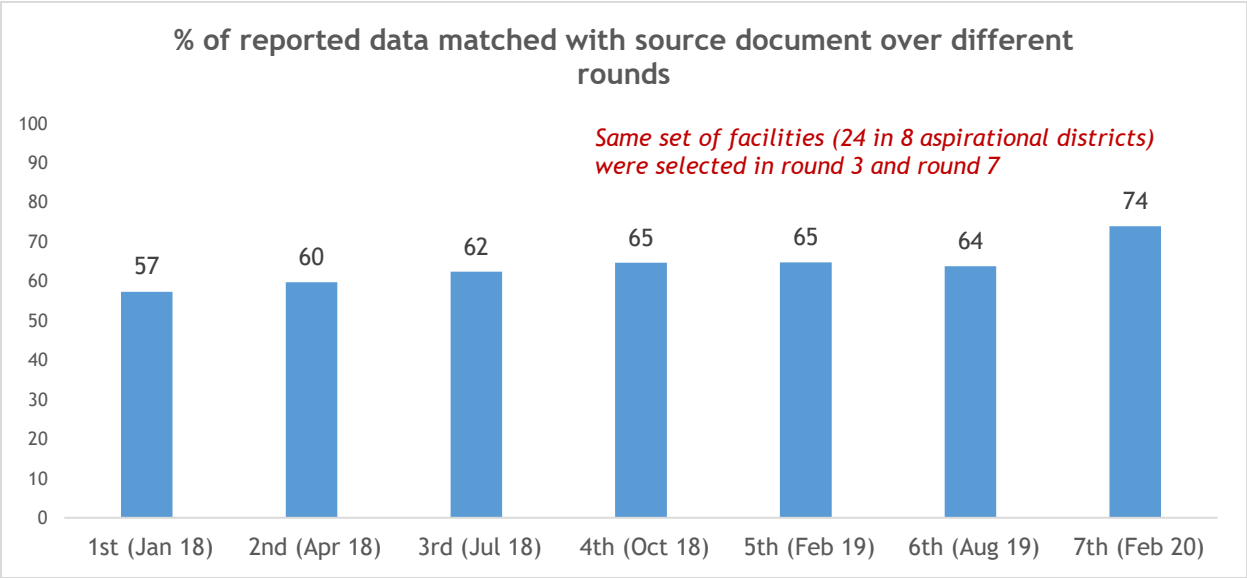
There has been continuous increase in matching with source document from round first to seventh round. It increased from 57% in first round to 74% in 7th round of data audit.

B. Comparison over Round 3 Vs Round 7 (Aspirational District)

There has been significant 12 percent point increase from 3rd (62%) to 7th (74%) round which depicts audit effect in aspirational districts sustained even after one and a half year.

Out of 24 common data elements, 18 have shown an improvement while 4 remained at same level. The matching has shown for 2 data elements which includes *"Pregnant women (PW) received 4 or more ANC checkups"* (46% in round 3 to 29% in round 7) and *"U5 children registered in OPD with pneumonia"* (63% in round 3 to 54% in round 7) during 7th round in comparison to 3rd round.

Table 6: Percent of facilities reported matching over 3rd and 7th round among same facilities of aspirational districts

Domain	Data elements	Round 3	Round 7
ANC	Pregnant women (PW) received 4 or more ANC check ups	46	29
	PW having severe anemia (Hb<7) treated	33	50
	PW for which ultrasound test done- JSSK(UPHMIS)	58	92
Delivery	Institutional Deliveries _Including C-Section	71	100
	Total C -Section deliveries performed*	29	46
	Delivered women received a diet- JSSK (UPHMIS)	42	58
	Women discharged within 48 hours of delivery	46	71
	Total live birth (Male+ Female)	67	100
	Still birth	67	92
Family planning	Female Sterilization (total of all method)	75	75
	Postpartum (within 48 hrs) IUCD insertions	63	88
Child health	U5 children registered in OPD with diarrhoea	50	50
	U5 children registered in OPD with pneumonia	63	54
	U5 children admitted in IPD with diarrhoea	63	67
	U5 children admitted in IPD with pneumonia	63	75
	U5 children with diarrhoea treated with ORS+zinc	46	54
	U5 children with pneumonia treated with amoxicillin	67	71
	Children aged b/n 9-11 mts fully immunized-Total (M+F)	58	63
Death	Maternal Deaths (15 to 49 yrs.)- Total	88	92
	Infant Deaths (1- 12 months)- Total	96	96
	Total newborn death (0-28 days) at facility	79	96
	Child Deaths between 1 year and less than 5 years- Total	100	100
OPD & IPD	Allopathic- Outpatient attendance	54	67
	Inpatient (Male + Female for both adult and child)	42	50
	Total	**62**	**74**

Pregnant women (PW) received 4 or more ANC checkups remained highly over reported (63%) data element. Since this data element is part of district ranking in the state and NITI AYOG ranking at national level, the district is tending to increase the reporting rather than the service. Some facilities at Fatehpur and Chitrakoot have reported 4 ANC on portal but there was no source record at the facility visited by the audit team.

The matching reduced for the data element "U5 children registered in OPD with pneumonia" in seventh round (63%) compared to the third round (54%). One fourth of facilities showed over-reporting and seventeen percent facilities have no record pertaining to child health reporting. The qualitative findings show two major reasons for poor matching:
1) Many MOs are not mentioning type of disease specially pertaining to child health and not preparing daily summary by type of diseases.
2) Some MOs are mentioning but there is no one assigned to compile the summary from OPD & IPD registers to report data elements related to child health.

Note: * Data element is applicable only for FRU facilities.

C. Comparison over sixth and seventh rounds

Common data elements (49) across all CHC and DH facilities were examined. The overall matching with source document improved from 58% in sixth round to 67% in seventh round. The matching of data elements with source document improved across all domains except hospital services. The matching remained higher among data elements pertaining to delivery & outcome, mortality and new-born health and the same remained poor among data elements pertaining to antenatal care and new-born complication.

Figure 3: Trend of matching with source records over different domains
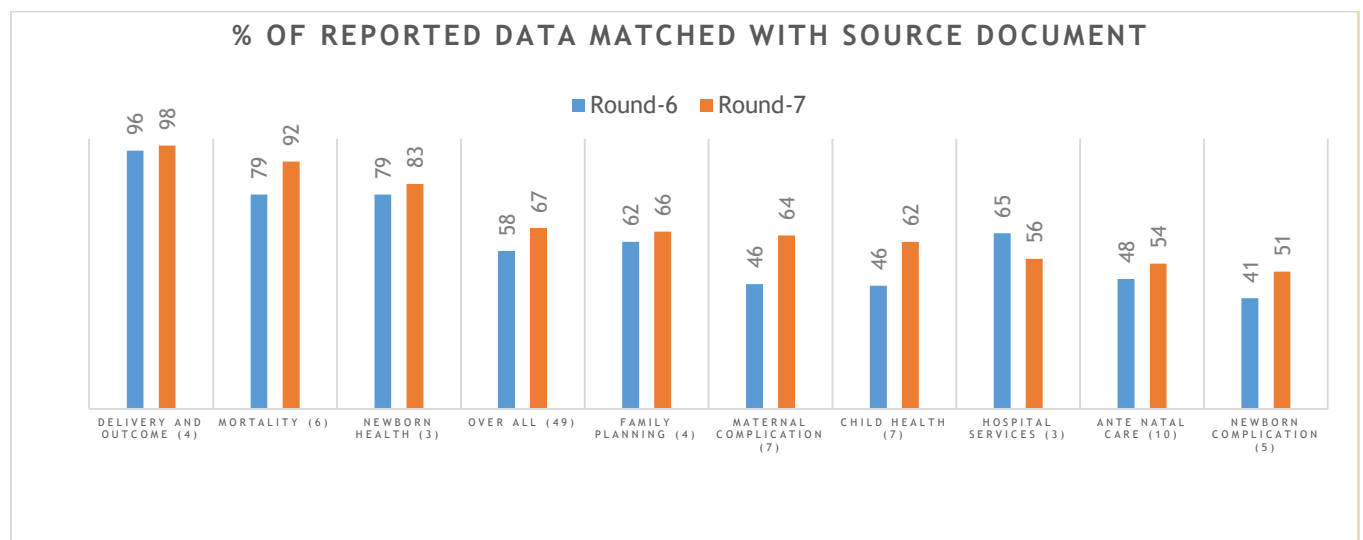
Besides matching, many of the data elements were also found as over reported and under reported. Child health, family planning and hospital services are domains where some over reporting was observed. Interestingly, the new-born complications and maternal complications were the domains

where significantly under reporting was observed. Also, some of the data elements from child health domain were not even able to be audited due to non-availability of documents at facilities. The details are given in Table 7.

Table 7 *Data audit summary*

Domain	% of matched with source		% of over reported		% of under reported		% of not able to audit	
	Round-6	Round-7	Round-6	Round-7	Round-6	Round-7	Round-6	Round-7
Ante Natal Care (10)	48	54	15	30	16	12	20	5
Delivery and Outcome (4)	96	98	0	1	4	1	0	0
Maternal Complication (7)	46	64	23	12	27	24	3	0
Newborn Health (3)	79	83	11	7	5	10	5	0
Newborn Complication (5)	41	51	21	8	30	40	8	1
Child Health (7)	46	62	4	17	5	2	46	18
Family Planning (4)	62	66	20	18	8	14	10	3
Hospital Services (3)	65	56	6	19	21	21	8	4
Mortality (6)	79	92	1	4	5	3	15	1
Over All (49)	**58**	**67**	**12**	**15**	**14**	**14**	**15**	**4**

D. Assessment of process related Gap

There are many factors which affect the reporting of quality data *(Figure 1, Data quality framework)*. It is essential to have these components in place at facility for reporting of quality data. The revised checklist had also captured the different factors *(availability of correct format, validation committee meeting, nodal person for data reporting, training etc)* which can affect the data quality of facility. System level gaps over last two rounds are given in Table 8.

Table 8: Percentage of facility reported system level gap over six and seven rounds of data audit

S.no.	Particulars	Round-6 (N=21)	Round-7 (N=24)
1	% of facility with appropriate printed HMIS format	67	88
2	% of facility with appropriate printed UPHMIS format	62	75
3	% of facilities where a nodal is assigned to review the data and its quality	90	83
4	Training on HMIS/UPHMIS during last one year		

S.no.	Particulars	Round-6 (N=21)	Round-7 (N=24)
4.1	% of facilities where at least two staff among ARO/HEO/BPM/HM/DEO have received training on HMIS/UPHMIS format definition and compilation	29	**58**
4.2	% of SN/ANM trained on HMIS/UPHMIS format definition	37	**38**
5	**Last validation meeting conducted**		
5.1	% of facilities where VCM held in last quarter including current month	62	**79**
5.2	% of facilities where VCM never held	14	**4**
6	**Using two or three or more modules of HMIS & UPHMIS**		
6.1	% of facilities where facility staff comfortable to use two or more modules of HMIS & UPHMIS *(HMIS standard & live report download/data quality app/Excel import/Report download-UPHMIS customized report/Pivot table) (Yes/No)*	81	**88**
6.2	% of facilities where facility staff comfortable to use three or more modules of HMIS & UPHMIS	48	**63**
7	% of facilities where any data quality supportive supervision visit/audit done in past six months by district, division or state officials *(Yes/No)*	43	21

D.1 Format availability

Availability of correct format is essential at facility to collect required information. Majority of facility have appropriate printed HMIS and UPHMIS formats. However, one fourth of facility are still not having printed UPHMIS formats and 12 percent haven't printed HMIS format.

D.2 Nodal to review the data and its quality

Around one fourth of facilities have not assigned a nodal to review the data and its quality. BPM/ARO at block facility and Hospital manager at district hospital are working as data nodal at majority of facility.

D.3 Validation committee meeting

The validation committee was constituted with an objective to validate the reported data and ensure the quality of reported data. Validation committee meeting is to be held monthly. However, it was observed that one fifth of the facility haven't conducted the meeting during last quarter.

D.4 Training on HMIS/UPHMIS

Training of block officials and staff nurses & ANMs emerged a big concern. Only Fifty percent block officials and 38% SNs and ANMs have received training on HMIS/UPHMIS format definition and compilation during last one year.

D.5 Skill to use portal

The ability to use different modules specially downloading *HMIS standard & live report from HMIS portal, using data quality application, Excel import, Report download-UPHMIS customized report and Pivot table on UPHMIS portal were observed by demonstration by* Hospital manager/BPM and DEO. Hospital manager/BPM and DEO are comfortable to use two or more modules of HMIS & UPHMIS in 88 percent of facilities. In case of three or more modules, Hospital manager/BPM and DEO are comfortable to use only in 63 percent of facilities.

D.6 Data quality supportive supervision visit/audit

There has been one of the recommendations based on data audit in almost all rounds to conduct data quality supportive supervision by district team to support block facilities. The support by the district/division/state team remained poor. Only 21 percentage of facilities have been supported by any data quality visit.

E. Source documents availability for recording of data elements

The availability of registers with provision of recording of information are the base for reporting of accurate information on monthly basis. Besides audit of 61 data elements, the recording provision of 4 critical domains *(ANC, Delivery, Family Planning, Child Health)* with availability of different type of registers in the facility were also assessed during the audit *(Table 9 & 10)*. Average number of registers remained almost same at DH and CHC over sixth and seventh rounds, however, high variations has been observed across same type of facilities in last both rounds across all the domains. Also, about half of the registers are available at facility were prepared manually and frequently used across all domains. Average number of source documents by facility type and by type of register over last two rounds are given in Table 9 & 10.

Table 9: Source document availability over last two rounds by type of facility

Domain	Average number of source documents (printed & manual both) (Min- Max) (N=24)			
	DH		CHC	
	R-6	R-7	R-6	R-7
Ante natal care	4(1-8)	4(2-5)	3(0-5)	3(1-5)
Delivery/Newborn care & complications	24(15-35)	25(20-32)	17(4-35)	17(4-31)
Family planning	7(4-10)	6(4-8)	6(0-10)	5(0-9)
Child health	2(0-3)	2(0-3)	2(0-3)	2(0-3)

Table 10: Source document availability over last two rounds by type of register

Domain	Average number of source documents (printed & manual both and manual only) (Min- Max) (N=24)			
	All (Printed & manual)		Manual only	
	R-6	R-7	R-6	R-7
Ante natal care	3(0-8)	3 (1-5)	2(0-7)	1(0-4)
Delivery/Newborn care & complications	19(4-35)	21(9-32)	8(0-20)	10(0-23)
Family planning	7(0-10)	6(2-8)	1(0-10)	1(0-4)
Child health	2(0-3)	2(0-3)	1(0-3)	1(0-3)

Four major domains are captured through 217 data elements from the monthly reporting formats of HMIS and UPHMIS. The recording of these data elements has been assessed by observing the presence of source documents only. Data captured by type of facility is given in Table 11. There has been considerable improvement in the capture of data elements through records from 31% during sixth round to 54% during seventh round. This improvements has been across all four domains. More than half (54%) of the data elements are currently recorded by the audited facilities. This ranges from 27% of child health (out of 80 data elements) to 67% of delivery and complication (out of 64 data element) related information. Still there are considerable number of data elements across different domains to be captured.

Table 11: Data elements captured at the facility

Domain (# of data elements)	% of data elements recorded (N=24)					
	DH		CHC		Total	
	R-6	R-7	R-6	R-7	R-6	R-7
Ante natal care (37)	29	66	32	52	31	56
Delivery/Newborn care & complications (64)	49	80	37	61	41	67
Family planning (36)	39	81	40	58	40	65
Child health (80)	17	36	11	23	13	27
Total	34	66	30	49	31	54

The facility wise gaps and action plan is annexed as *Annexure 2*

6. MAJOR CHALLENGES

Several challenges were observed during the data quality audit that towards the low data quality status. The following challenges were observed by team during data audit:

a. **Non-functional validation committee meeting:** The validation committee was constituted with an objective to validate the reported data and ensure the quality of reported data. But, it was observed that one fifth (20%) of the visited facilities (block facility and DH) did not conduct validation meeting during last quarter. Majority of the facility where validation meeting took place, it was not as per the guideline. While interaction with committee members and observation of registers following issues came into notice:

    i.   No screening of formats by the team

    ii.   No focus on key data elements related to ranking, NITI AYOG and hospital performance in the meeting

    iii.   No examination of source documents to avoid counting error or correct reporting

    iv.   No clear minutes and action plan in validation committee registers

b. **Understanding issue with some data elements:** While data audit it came to notice that there is understanding issue for the reporting ANC data elements specially 4ANC & 4HB, and for data elements pertaining to maternal & newborn complications, child health and full immunization.

c. **Absence of preparation of monthly summary in a register:** HMIS and UPHMIS are the two monthly reporting portals which require a monthly compilation of information from the source documents. Child health, OPD and IPD were the domains where monthly summary was not prepared at majority of facility. However, it was also observed that monthly summary preparation was usually less across most of the domains. The absence of monthly summary leads to wrong or blank reporting of the services provided by the facilities.

d. **Data element wise accountability of staff is missing:** There are 311 data elements in HMIS format and almost the same in UPHMIS format. There are many reporting points in a facility (PHC/CHC/DH). To ensure complete reporting all staff are supposed to share the information such as LT to share lab information, SN to share delivery & newborn related data elements, MO to share OPD related details and so on. However, many of the staff are not aware of regarding reporting. Therefore, completeness of the format is affected.

e. **Non-uniform and non-availability of source documents (registers):** Correct and optimal recording of individual information in register is the base for any reporting. The correct recording involves the availability of source document and having a provision to record all the information supposed to be reported without any duplication. The non-uniform and

unavailability of source documents were observed as the major bottleneck for reporting of quality data. There was no provision of recording of around half (46%) of the data elements (in four major domains) of HMIS/UPHMIS which were supposed to be reported by the facilities. This varied significantly for different domains and facilities but overall level remained low across all the domains (27% of recording provision in child health to 56% in ante-natal care).

Besides this, a huge disparity in available number of registers was also observed among different facilities. Also, about 50% of the registers were manually prepared by facility staff which had duplicate information and added burden to the data capturing.

7. SUGGESTIVE SOLUTIONS

a. Standardization of source documents
The availability of non-uniform registers causes lot of burden on facility staffs which further leads to duplication of their efforts too. There is a need to review the available registers and recommend a standard register to fulfill all the program need based on the findings over last tow rounds. This can be done in following 2 ways:
  - o Assessment of need and development of comprehensive registers to be maintained at each level of the facility can be done
  - o A pilot with comprehensive registers can be done in 2 districts with redesigned comprehensive registers
  - o Committee comprising different program nodals (Directorate & NHM) can be formed to redesign the comprehensive registers for different level of facilities
The committee may further finalize the source document for each level of facility considering the need of all the program without any duplication.

b. State validation meeting with divisional M&E hub
The validation committee was constituted with an objective to validate the reported data and ensure the quality of reported data. The state office has also issued guideline to conduct the meeting at block, district and DH.
The data quality based review of divisional M&E hub is currently missing from the system. A quarterly state level validation committee meeting can be a good platform to review the data quality of the state with divisional M&E hub and their accountability can also be established.

c. Continuous follow up visit and hand hold support by divisional M&E hub
It is important to have a supportive supervision visits of the districts by divisional M&E for continuous improvement in data quality. The divisional M&E officer must build the capacity of district and block level staff to analyze and report the quality data. It is equally important to priorities the facilities/blocks by the divisional M&E officers. This prioritization can be based on the identified gaps through data analysis. The continuous support by divisional M&E hub will also strengthen the validation committee meeting at district and block level.

d. Continuous orientation on HMIS/UPHMIS data elements to facility staff

Only half of block officials and 38% SNs have received orientation on HMIS/UPHMIS during last one year. Block officials such as ARO, BPM and DEO must be oriented on HMIS/UPHMIS data elements reporting and key data elements quarterly. Staff nurses must be oriented at district level on HMIS/UPHMIS data elements quarterly. Divisional M&E office can play significant role in the orientation at Mandal and district level.

e. Data element wise accountability of staff

Data element wise accountability of staff need to be fixed and verified by MOIC at the block and by CMS at the DH.

f. Monthly summary of reporting data elements in the record

All reporting staff must prepare monthly summary for reporting data elements on the record. It shows accountability for reporting data elements.

GLIMPSES OF DATA AUDIT

Picture 2 Data quality supportive supervision by state team at DWH Balrampur

Picture 1 Data quality supportive supervision by state team at DCH Shrawasti

Picture 2 Feedback meeting on data quality findings with CMS Fatehpur

Picture 1 Feedback meeting in district Chitrakoot under the chairmanship of CMO