QUALITY ASSURANCE IN OFFICIAL STATISTICS

Ministry of Health & Family Welfare

Government of India

INTRODUCTION

- India is one of the fastest growing world economies

- Rapid pace of growth requires improvement in health

- Demographic dynamics & health statistics of a population are critical in determining success of health policies, interventions and schemes

- Health Statistics enables countries to target their health problems and prioritize the use of precious health resources.

- The health statistics need to be comprehensive to allow evidence based planning of health and welfare programmes & monitoring outcomes

- Sound & reliable information is foundation of decision-making across all health system

Health Management Information System (HMIS)

QUALITY OF DATA

OBJECTIVES OF A HMIS

- To Monitor the performance & quality of health care services under the National Health Mission

- A tool for evidence based health planning

- Repository of information on health care indicators and trends

- Used for testing the effectiveness, efficiency and coverage of health programs and schemes

- To improve availability and access of health care to the population

- Developing and monitoring performance based health indicators

HMIS

- **Health Management Information System (HMIS)** is a web based management information system launched by MOHFW in 2008 with district level reporting
- 2010-11 onwards facility level reporting was initiated
- Currently around 2,00,000 health facilities across all districts of India are uploading data every month
- Data analytical & reporting capabilities using SAS platform services
- GIS module of HMIS is available in Public domain
- HMIS provides ready to use National, State, District and sub-district reports (available in Public domain)
- Platform for evaluating the PIP on the basis of services rendered by health facilities


https://nrhm-mis.nic.in

CURRENT COVERAGE OF HMIS

Facility Type/No*.	Sub-Centre	Primary Health Centre	Community Health Centre	Sub-District Hospital	District Hospital	Total
Total	160894	30802	11762	2276	1200	206934
Public	160814	30354	5631	1350	1008	199157
Private	80	448	6131	926	192	7777
Rural	157413	24963	7195	1072	1197	191840
Urban	3481	5839	4567	1207	0	15094

* Equivalent facilities as mapped in HMIS

DATA QUALITY DIMENSIONS & HMIS

Data Quality Dimensions

Relevance

Accuracy

Timeliness & Punctuality

Completeness

Accessibility & Clarity
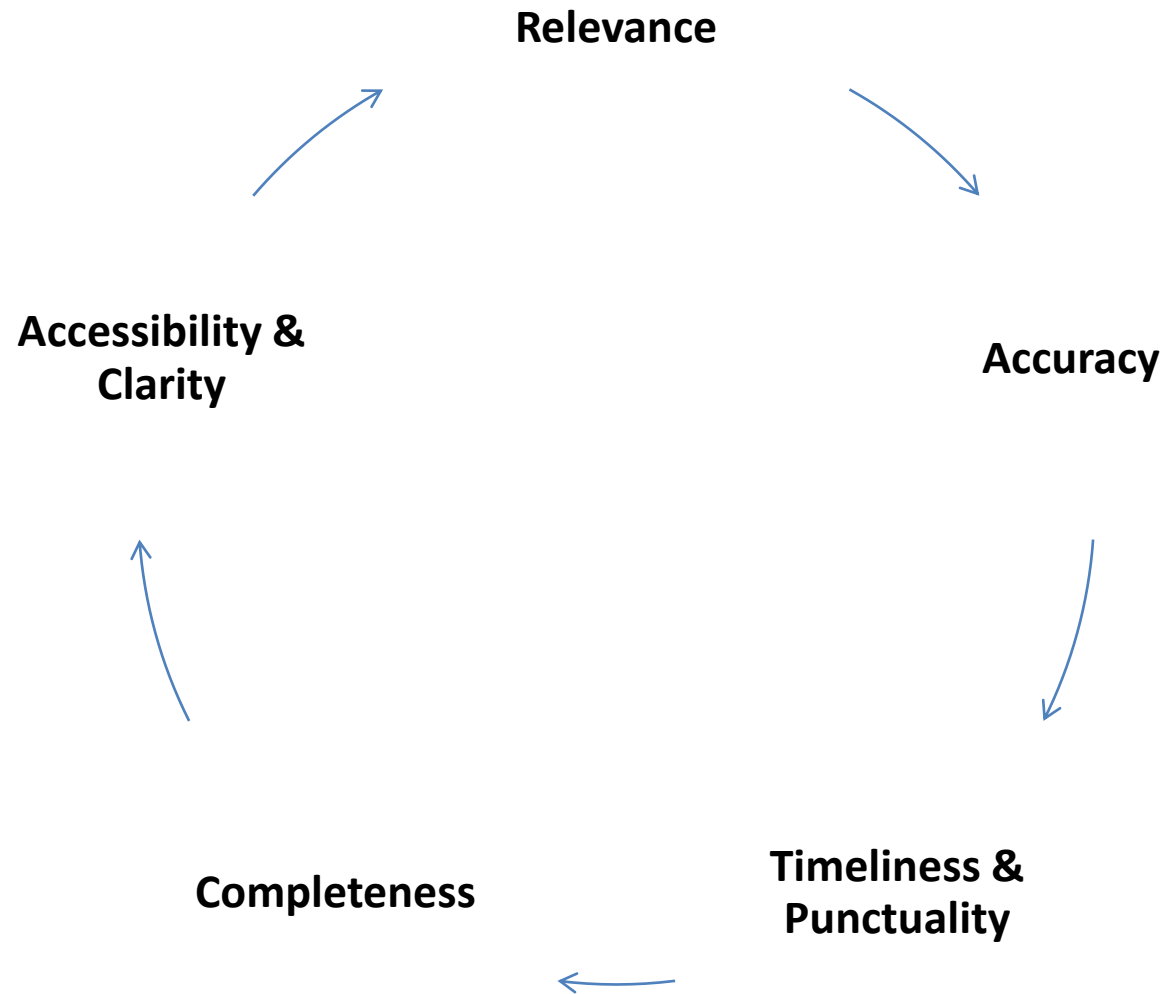
Technical Checks and Dimensions in built in the HMIS System

- All Facility Types have

  - Separate Formats

  - Variable content

  - Data items to suit their categories

- Accuracy/correctness through validation rules

- Timeliness- Each facility is supposed to enter the data by 5th of month for the previous month in case of monthly MIS data and by 30th April in case of Annual Infrastructure data.

- Completeness mainly focus - Under Coverage, Over coverage, Redundancy, Missing values- Data status report and % filling report

- Accesibility- HMIS data is available in public domain in ready to use Excel formats

FLOW OF DATA IN HMIS
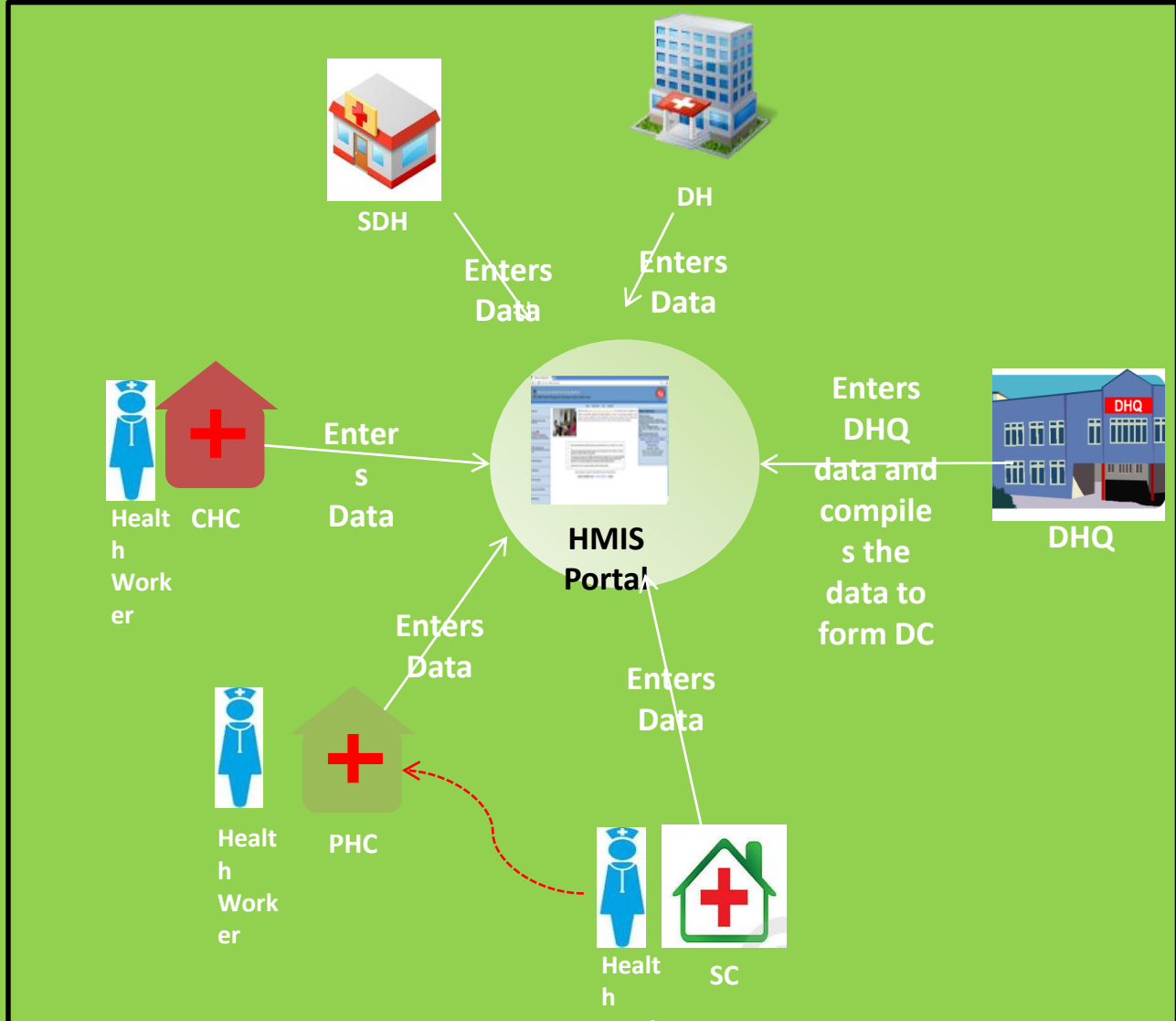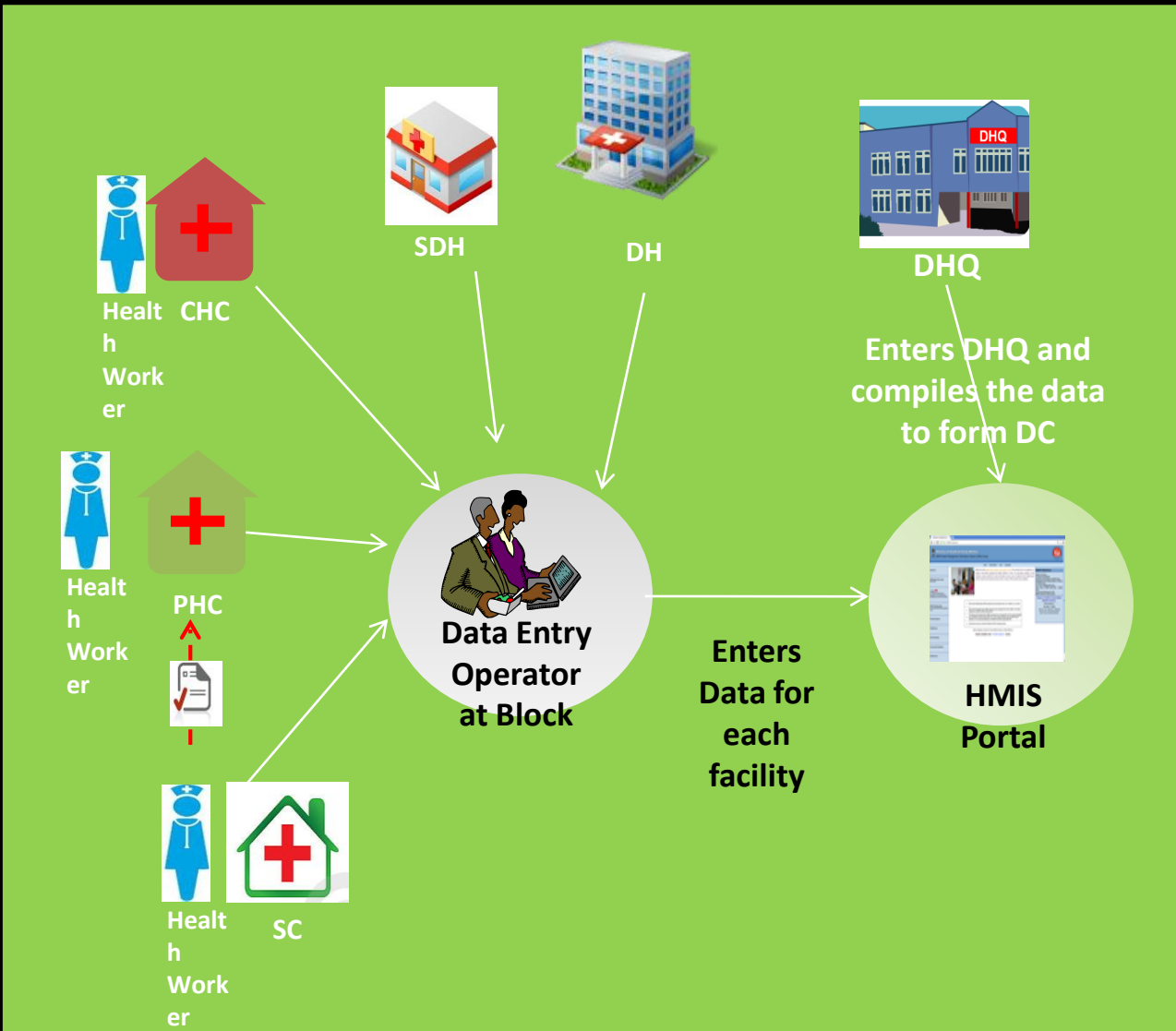
Each level is supposed to ensure the Quality and Quantity of data reported and forward it to the next higher level

DATA QUALITY VALIDATIONS CHECKS & REPORTS IN HMIS

Inbuilt Consistency check while uploading

- **Verify option**
- **Compare option**
- **Inter-data validation checks**

Reports

- **Percentage Filled Reports**
- **Validation Errors Reports**
- **Probable Outliers & Validation Error Reports**
- **District/Sub District specific Reports**
- **RCH Performance Reports**

## Random check of data is done from registers at Facility Level

DATA QUALITY ASSURANCE PILOT STUDY

To Strengthen HMIS, a pilot project on assessment of data quality conducted in five districts of India in January–February 2016:

- Using stratified sampling, all health facility types selected in Birbhum (West Bengal), Chirang (Assam), Ernakulum (Kerala), Ferozpur (Punjab) and Kota (Rajasthan) districts for the study

- The title of the project was "Strengthening the Health Management Information System: Pilot Assessment of Data Quality in Five Districts of India".

- This Data Quality Assurance (DQA) pilot was conducted at health administrative units and 126 randomly selected health facilities.

- Twenty-eight data elements, drawn from RMNCH+A scorecard, CHC grading, and Min-Max report of HMIS, were selected for verification.
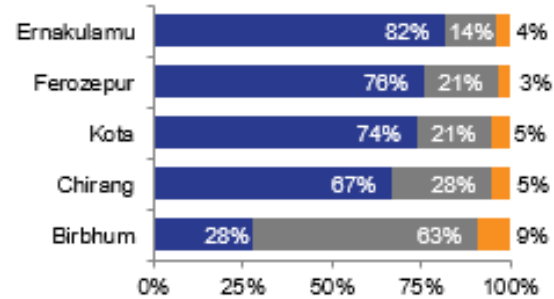
MAJOR FINDINGS OF DQA

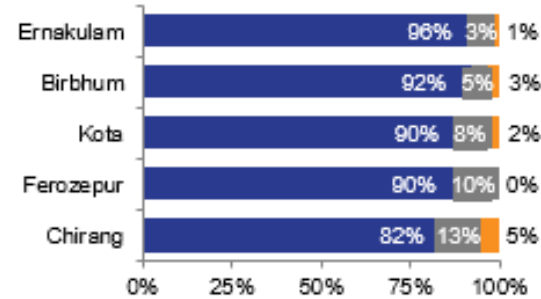## Completeness of Data in Service Delivery Registers
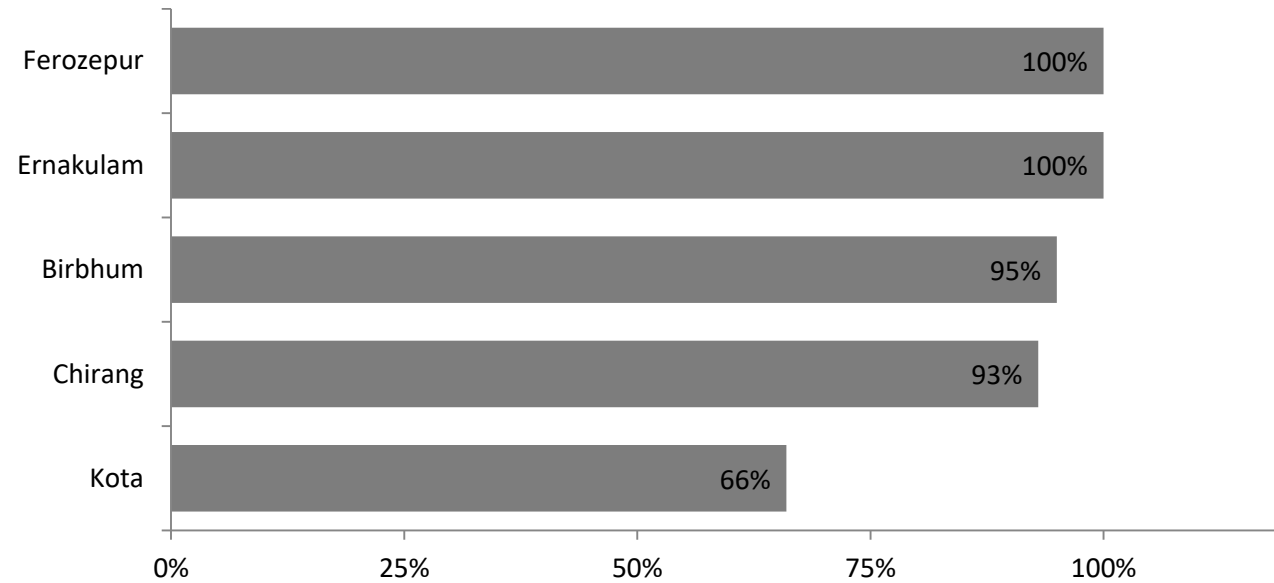
MAJOR FINDINGS OF DQA

HMIS Data Flow and the Site of Data Accuracy Loss

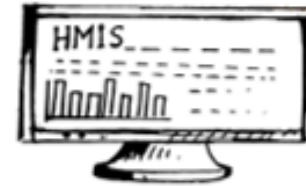**Data Match Between Service Delivery Register and Monthly Summary Report**

	Blue	Grey	Orange
Ernakulamu	82%	14%	4%
Ferozepur	76%	21%	3%
Kota	74%	21%	5%
Chirang	67%	28%	5%
Birbhum	28%	63%	9%

Data Match Between Monthly Summary Report and HMIS Portal

	Blue	Grey	Orange
Ernakulam	96%	3%	1%
Birbhum	92%	5%	3%
Kota	90%	8%	2%
Ferozepur	90%	10%	0%
Chirang	82%	13%	5%

SERVICE DELIVERY REGISTER → **MONTHLY SUMMARY REPORT** → **HMIS PORTAL**

	Blue	Grey	Orange
Ernakulam	77%	17%	6%
Ferozepur	69%	27%	4%
Kota	63%	28%	9%
Chirang	58%	32%	10%
Birbhum	24%	64%	12%
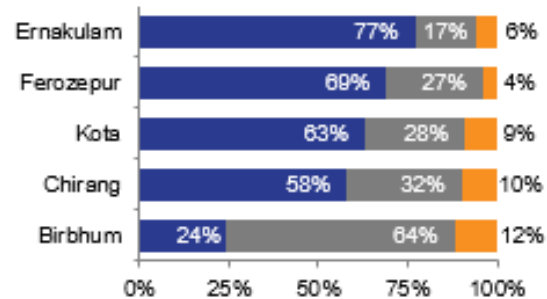
Data Match Between Service Delivery Register and HMIS Portal

Key
- Data matching exactly
- Data matching within acceptable range (± 10% or 10 cases)
- Discrepant data beyond acceptable range

RECOMMENDATIONS OF DQA

- Strengthen the health information workforce to ensure improved availability of trained HMIS resources

- Ensure dissemination of standardized data definitions and data collection guidelines to ground-level facilities and ensure use of standardized reporting formats by all health facilities

- Formalize data management practices and processes for data verification, correction, and feedback and supervisory support

- Improve data use for planning and management of health services, especially for day-to-day managerial planning and decision making at the facility level

- Strengthen IT infrastructure, particularly to ensure regular internet connectivity

- Improve coverage of private facilities in the HMIS, perhaps through regulatory guidelines and customized reporting formats

MONITORING & SUPERVISION VISITS

- Random checks of HMIS data in the registers at Facility Level is undertaken during field visits

- Supportive supervision visits undertaken by the Staff at the various levels to verify HMIS data

- During Common Review Mission of National Health Mission HMIS data is extensively used during field visits

- Population Research Centre (PRCs) are also involved in the data verification exercise of the HMIS data

National Family Health Survey(NFHS)

QUALITY OF DATA

National Family Health Survey

Background

*Initiated in the early 1990s

*Emerged as a nationally important source of data on population, health and nutrition for India and it's States.

*The first round of NFHS was conducted in 1992-93. Since then, India has successfully completed

✓ NFHS-2 in 1998-99,

✓ NFHS-3 in 2005-06

✓ NFHS-4 in 2015-16.

NATIONAL FAMILY HEALTH SURVEY-4

National Family Health Survey (NFHS)-4 as an integrated survey with the aim to provide estimates of the levels of fertility, infant and child mortality by background characteristics at State / National level, and other key family welfare and health indicators at the National, State and District levels.

Coverage and sample size and survey period - NFHS-4

- NFHS-4 is the first of the NFHS series that collected data in each of India's 29 States and all 7 Union Territories.
- Also, NFHS-4, for the first time, will provide estimates of most indicators at the district level for all 640 districts of the country included in the 2011 Census.
- In NFHS-4, women aged 15-49 years and men aged 15-54 years of selected households are interviewed.
- NFHS-4 fieldwork for India was conducted from 20 January 2015 to 4 December 2016
- 14 Field Agencies/PRCs and gathered information from 601,509 households, 699,686 women, and 103,525 men.

NFHS -4

Sample design

- A complete household mapping and listing operation in every Primary Sampling Unit, and the random selection of sample households by IIPS and not the Field Agency to avoid bias.

Quality of data

- The MoHFW through the nodal agency IIPS conducted the fourth round of NFHS(NFHS-4) during 2015-16.

- The NFHS-4 went to lengths to ensure that fieldworkers were rigorously trained and closely monitored to ensure data quality.

- Different mechanisms are used to ensure data quality in NFHS-4

NFHS -4

Training

- NFHS-4 was conducted in two phases to promote efficient administration and management of the surveys.

- Extensive Training of Trainers (TOT) in each phase.

- Four key survey staff deputed for the full length of the TOT.

- The training included all aspect of the survey plus field practice.

- Comprehensive manuals were distributed to the appropriate trainees (Interviewer's Manual, Supervisor's Manual, CAPI Manual, and CAB manual).

NFHS -4

Training (contd.)

- CAB videos were produced both in Hindi and English, covering procedures for
  - anaemia testing,
  - blood glucose testing, and
  - collection of blood on filter paper cards to produce dried blood spots for the HIV testing labs.

- After the TOT, the Field Agencies (FAs) with the help of master and IIPS conducts a minimum of four week training, for all the fieldworkers

- States having more than 10 districts were required to organize multiple training programmes to ensure that there were not too many trainees in each training course.

- FAs were required to hire 10-15% more fieldworkers for the training than would be needed for the fieldwork to cover attrition and the weeding out of incompetent trainees.

- To ensure quality of the field work the IIPS Project Officer or Senior Project Officer conducted tests after the field level trainings.

NFHS -4

Field Monitoring

- NFHS-4 was the first NFH survey to collect data electronically on mini-computers.

- Computer-assisted personal interviewing (CAPI) helped to control the quality of data

- The questionnaires were also translated into different regional languages.

- In NFHS-4, the data collected in the field were transferred electronically to IIPS on a daily basis through a secure Internet File Streaming System (IFSS) allowing real-time monitoring of the data.

- The use of IFSS for data transfer acted as deterrent against poor interviewing behavior

- 41 field-check tables in all, covering key aspects of the data collection, broken down by state, field team, and individual interviewer.

- Further there were field project staff (PO(Field) and SPO(Field)) engaged by IIPS to monitor the field work

USE DATA WISELY

THANK YOU!

Guidelines

Guidelines related

- **Guidelines for Automation of Forwarding and Compilation process** *new*
- **New HMIS Formats Matrix** *new*
- **Guidelines for New HMIS Monthly Format Version 1** *new*
- **Guidelines for Grading of PHC** *new*
- **Concept Note for Ranking of DH** *new*
- **Guidelines for new data items added for DH ranking by NITI Aayog**
- **Guidelines for Urban Mapping**
- **Guidelines of Grading of CHCs**
- **Data Reset & Modification Guideline for HMIS monthly data**
- **Score Card Manual**
- **Guidelines on New/Modified Data elements in HMIS Data entry formats**
- **Training material related to SAS**

TRAINING & REVIEW MEETINGS

TRAINING & ORIENTATION

- The Ministry has structured training programme for the personnel involved in data recording, reporting, aggregation, verification and feeding

- In the Annual PIP of States, budget as per norms for holding training is given

- Training of staff at various levels is provided on data definition of data elements

NATIONAL & REGIONAL REVIEW MEETINGS

- The Ministry conducts annual National level HMIS review meeting

- The objectives of this review is to shows the data quality issues to the State level Data Manager/ HMIS nodal officers

- 3-4 Regional review meeting for a group States/district conducted ever year.

- Major focus is to share HMIS Data quality issues of respective States and action taken sought from the States

VERIFY

COMPARE

INTER DATA VALIDATIONS

% FILL REPORT

State	District	Sub District	Facility	Tot. Data Items	June					
					Filled	Filled %	Zero	Zero %	Blank	Blank %
Assam	Barpeta	Chenga	AMRIKHOWA	284	88	30.99	17	5.99	196	69.01
					88	30.99	17	5.99	196	69.01
		Mandia	ALOPATICHAR	284	279	98.24	193	67.96	5	1.76
			BAGHBAR	284	216	76.06	207	72.89	68	23.94
			BAGHMARA	284	282	99.3	252	88.73	2	0.7
					259	91.2	217.33	76.53	25	8.8
		Nagaon	AMDAH	284	79	27.82	0	0	205	72.18
					79	27.82	0	0	205	72.18
		Nityananda	AKAYA	284	278	97.89	210	73.94	6	2.11
					278	97.89	210	73.94	6	2.11
					203.67	71.72	146.5	51.58	80.33	28.28
					203.67	71.72	146.5	51.58	80.33	28.28
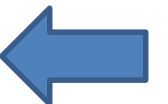
VALIDATION ERROR

VALIDATION ERROR
Financial Year: 2018-2019
State: Gujarat
District: Ahmedabad
Status As On: 26 Oct 2018, 2:00 PM

District				Apr	May	Jun	Jul	Aug	Sep	Oct	Total
3	Number of PW given 180 Iron Folic Acid (IFA) tablets<=Total number of pregnant women registered for ANC	LHS	1.2.4- Number of PW given 180 Iron Folic Acid (IFA) tablets	16,141	19,327	23,352	20,737	19,315	20,127	.	1,18,999
		RHS	1.1- Total number of pregnant women registered for ANC	14,242	15,493	15,938	17,545	15,305	16,774	.	95,297
		Val	Absolute Diffrence	1,899	3,834	7,414	3,192	4,010	3,353		23,702
			Validation Issues	Error	Error	Error	Error	Error	Error		Error
4	Number of PW given 360 Calcium tablets<=Total number of pregnant women registered for ANC	LHS	1.2.5- Number of PW given 360 Calcium tablets	15,505	19,406	23,015	19,818	18,551	17,790	.	1,14,085
		RHS	1.1- Total number of pregnant women registered for ANC	14,242	15,493	15,938	17,545	15,305	16,774	.	95,297
		Val	Absolute Diffrence	1,263	3,913	7,077	2,273	3,246	1,016		18,788
			Validation Issues	Error	Error	Error	Error	Error	Error		Error
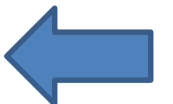
OUTLIER & VALIDATION

ID	DATA ITEMS	'Nov - 17'	'Dec - 17'	'Jan - 18'	'Feb - 18'	'Mar - 18'	'Apr - 18'	'May - 18'	'Jun - 18'	'Jul - 18'	'Aug - 18'	'Sep - 18'	'Oct - 18'
Part A.	REPRODUCTIVE AND CHILD HEALTH												
1.2.8	Number of PW given ANC Corticosteroids in Pre Term Labour	1,218	1,168	1,294	1,190	1,002	1,160	[2,289]	1,439	1,059	1,151	1,367	[163]
1.3.1	New cases of PW with hypertension detected	987	1,133	1,291	1,429	1,562	1,727	1,389	1,331	1,309	1,448	1,392	[153]
1.4.3	Number of PW having Hb level<7 (tested cases)	5,492	3,948	4,672	3,849	4,786	4,525	4,964	4,453	5,942	4,771	4,947	[373]
1.4.4	Number of PW having severe anaemia (Hb<7) treated	1,524	757	916	933	1,526	1,326	1,441	1,524	1,977	2,015	1,888	55
1.5.1	Number of PW tested for blood sugar using OGTT (Oral Glucose Tolerance Test)	5,030	3,421	5,178	5,759	6,954	5,704	6,294	7,181	8,367	8,123	6,863	[437]
1.6.2.b	Number of pregnant women tested found sero positive for Syphilis	19	322	41	30	58	278	30	31	175	272	269	0
1.6.2.c	Number of syphilis positive pregnant women treated for Syphilis	[93]	0	3	7	27	35	9	12	[222]	5	5	0
M2	Deliveries												
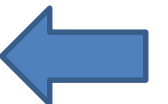
DISTRICT AND SUB DISTRICT LEVEL REPORTS

Performance of Key HMIS Indicators for Bihar

Financial Year: 2018-19

Provisional Figures for the Period April to October

	Indicators	1		2		3	
		Total number of pregnant women Registered for ANC		Number of Pregnant women registered within first trimester		% 1st Trimester registration to Total ANC Registrations	
		2018-19	2017-18	2018-19	2017-18	2018-19	2017-18
	_Bihar	1,793,277	1,939,389	1,183,373	1,164,476	66	60
1	Araria	60,942	61,444	31,240	32,057	51.3	52.2
2	Arwal	8,926	10,316	6,664	5,945	74.7	57.6
3	Aurangabad	45,648	44,981	32,355	29,693	70.9	66
4	Banka	30,928	34,548	22,388	22,915	72.4	66.3
5	Begusarai	53,160	55,270	40,837	36,611	76.8	66.2
6	Bhagalpur	49,552	57,085	25,659	26,429	51.8	46.3
7	Bhojpur	31,256	37,998	21,018	24,764	67.2	65.2

Performance of Key HMIS Indicators for Araria

Financial Year: 2017-18

Provisional Figures for the Period April to June

	Indicators	1	2	3	4	5	6	7	8
		Total number of pregnant women Registered for ANC	Number of Pregnant women registered within first trimester	% 1st Trimester registration to Total ANC Registrations	Number of pregnant women received 4 or more ANC check ups	TT2 given to Pregnant women (numbers)	TT Booster given to Pregnant women (numbers)	% Pregnant Woman received 4 ANC check ups to Total ANC Registrations	% Pregnant women received TT2+ TT Booster to Total ANC Registration
		2017-18	2017-18	2017-18	2017-18	2017-18	2017-18	2017-18	2017-18
	_Araria	28,035	15,436	55	6,412	15,191	10,546	22.8	91.8
1	Araria Sadar	4,000	2,331	58.3	756	2,364	2,006	18.9	109.3
2	Araria Urban	1,413	335	23.7	715	205	85	50.6	20.5
3	Bhargama	2,361	1,341	56.8	430	1,196	1,027	18.2	94.2
4	Forbesganj	4,384	1,961	44.7	484	2,493	2,051	11	103.6
5	Jokihat	2,409	1,172	48.7	824	1,661	800	34.2	102.2
6	Kursakanta	1,671	1,048	62.7	175	704	736	10.5	86.2

RCH REPORT

Performance Related to Immunisation: Bacillus Calmette Guerin (BCG)

All India

Period: April to March for the year 2017-18 and 2016-17

As on 26 Oct 2018, 2:00 PM

Refreshed on weekly basis

State/UT/Agency		Need Assessed (2017-18)	Achievement during April to March		% Change	% Achievement of need assessed (2017-18)
			(2017-18)	(2016-17)		
		(A)	(B)	(C)	(D=((B-C)/C)*100)	(E=(B/A)*100)
	All India	26,311,000	23,695,131	24,011,838	-1.3	90.1
I. High Focus-NE	Arunachal Pradesh	27,000	21,629	19,941	8.5	80.1
	Assam	707,000	639,581	674,146	-5.1	90.5
	Manipur	44,000	44,323	49,048	-9.6	100.7
	Meghalaya	73,000	81,010	85,600	-5.4	111.0
	Mizoram	18,000	17,953	19,839	-9.5	99.7
	Nagaland	32,000	23,418	26,349	-11.1	73.2
	Sikkim	11,000	7,164	7,083	1.1	65.1
	Tripura	57,000	51,145	51,370	-0.4	89.7