

**Summer Training at
NRHM Shimla,
Himachal Pradesh
(April - June, 2013)**

**HEALTH MANAGEMENT INFORMATION SYSTEM (HMIS)
IN HIMACHAL PRADESH**

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**Under the guidance of
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**Post Graduate Diploma in Hospital and Health Management
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CERTIFICATE

This is to certify that, Dr Kajal Chauhan student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management and Research, Jaipur Batch 17th has undergone summer training in NRHM Shimla, Himachal Pradesh. During this period she did summer project on “ Study Of (Health Management Information System) HMIS in Himachal Pradesh” from April 8th to June 8th 2013.

The candidate has successfully carried out the study assigned to her during summer training and her approach to study has been sincere, scientific and analytical.

I wish her success in all her future endeavors.



Dr Nutan P. Jain
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SUMMER TRAINING COMPLETION CERTIFICATE

This is to Certify that Dr. Kajal Chauhan has undergone Summer training at National Rural Health Mission, Himachal Pradesh from 8th April, 2013 to 8th June, 2013.

During this period, the candidate has carried out study on the topic "Issues in the effective implementation of HMIS." related to summer training under the supervision of Dr. Rajesh Guleri, OSD, HMIS.

Her approach towards the study has been sincere and analytical. She was hardworking and dedicated during her work.

• We wish her Good luck for a bright and successful future.


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Abbreviations

ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ASHA	Accredited Social Health Activist
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
BMO	Block Medical Officer
BPL	Below Poverty line
CHC	Community Health Centre
DOTS	Directly Observed Treatment Short course
EAG	Empowered Action Group
FBR	Facility Based Reporting
GIS	Geographical Information System
GoI	Government Of India
HMIS	Health Management Information System
HIV	Human Immunodeficiency Virus
MCH	Maternal & Child health
MCTS	Maternal and Child tracking System
M&E	Monitoring & Evaluation
MoHFW	Ministry of Health and Family Welfare
MTP	Medical termination of pregnancy
NPCB	National Programme for Control of Blindness
NRHM	National Rural Health Mission
NVBDCP	National Vector Borne Disease control Programme
PHC	Primary Health Centre
PMU	Programme Management Unit
PNC	Post Natal Care
RCH	Reproductive Child Health
SC	Sub Centre
SPO	State Programme Officer
STI/RTI	Sexually transmitted infections / Reproductive tract infections

Executive Summary

The introduction of the National Rural Health Mission has increased the demand for micro-level data on population and health for use in monitoring, planning and programme implementation. This has lead to the introduction of a **Health Management** Information System (HMIS).

The very term of health management information system is, to emphasize the use of the information for management of the health system.

HMIS is required to insure the production of high-quality information as ‘**resource**’ or input on timely fashion for the needed purpose.

As a step ahead in this regard the GOI launched a national portal-based HMIS in 2008 that was a bold and innovative step. However, there are several challenges that must be overcome to develop HMIS as an effective tool for planning and monitoring.

The purpose of the study HMIS in Himachal Pradesh was; to assess and determine how health information is generated and utilized in the decision-making process in the region. The study also attempted to identify factors affecting the quality in reporting, Problems in reporting, information generation and utilization at state, district, block and health facility levels.

The study covered a single district under which 2 blocks were undertaken to know the problems/issues faced while reporting under HMIS at each level of reporting.

The finding of the study indicated that; without training and motivating grass-root functionaries to report HMIS data in an accurate, timely manner and monitor its quality, HMIS data cannot be used for health sector planning.

Introduction

Himachal Pradesh (HP) is a hilly state and one of the eighteen states who have been given special focus under NRHM. The population of Himachal Pradesh generally enjoys a better public health care infrastructure and better health status than many other Indian states.

The Department of Health and Family Welfare has played an important role in this success through such activities as improving government health facilities and implementing targeted disease reduction campaigns.

Also in HP the share of health care provided by the government has been growing.

However, with regard to service delivery, HP is not immune from common problems among government health care facilities across areas of health status, use and reliability of government facilities, consolidation, decentralization; – a common and critical need exists for **better data**.

The Department needs to give considerable attention to the efficient collection, analysis, and distribution of key health data so that policymakers and health workers can make informed decisions and better prepare for the future. This may require that the state undertakes its own data collection efforts apart from what the national government requires.

NATIONAL RURAL HEALTH MISSION

The **National Rural Health Mission** (NRHM) was launched on 12th April 2005 with primary objective of provisioning of accessible, affordable and accountable quality health care delivery system, especially to vulnerable and underserved population groups in India. with special focus on 18 States, viz. eight Empowered Action Group (EAG) states (Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Orissa, Rajasthan, Uttar Pradesh and Uttarakhand), eight North Eastern States and the hill States of Jammu and Kashmir and Himachal Pradesh which had poor health indices.

The main **objectives** of the NRHM are:

- Reduction in child and maternal mortality.
- Universal access to public services for food and nutrition, sanitation and hygiene and universal access to public health care services with emphasis on services addressing women's and children's health and universal immunization.
- Prevention and control of communicable and non-communicable diseases , including locally endemic diseases.
- Access to integrated comprehensive primary health care
- Population stabilization, gender and demographic balance
- Revitalize local health traditions & mainstream AYUSH
- Promotion of healthy life styles.

The Mission's Core Strategies also encompasses Training & Capacity Building for quality data collection, assessment and review for evidence based planning, monitoring and supervision of the programme to make it more effective to achieve NRHM goals.

For realization of objectives of NRHM and widely approved consensus on accurate, timely and regular information systems, great emphasis has been laid on data capturing at each facility, block and district level which is further collated at state and National level every month of financial year.

For this ,HMIS was introduced as a tool for using health related data for effective programme management.

Health Management Information System

With the Introduction of the National Rural Health Mission (NRHM) as a flagship scheme of the Ministry of Health and Family Welfare (MoHFW), a continuous flow of good quality information on inputs, outputs and outcome indicators was needed that facilitates monitoring the objectives of NRHM for which an efficient Health Management Information System (HMIS) is required.

Health information systems were initially oriented only to collect information on disease and health services outputs; but in the contemporary era, health information systems are referred to be a part of the health system; and hold great importance in the planning and decision-making of health care delivery services. It thus, plays an important role in maintenance and taking care of health related data

HMIS may be defined as *“A tool which helps in gathering, aggregating, analyzing and then using the information generated for taking actions to improve performance of health systems.”(GOI, 2008: 2).*

Health information has been variously described as the “**foundation**” for better health, as the “**glue**” holding the health system together, and as the “**oil**” keeping the health system running. If information is to be used as an indispensable resource for effective health management; it has to generate meaningful, reliable, accurate and timely information to the health managers.

HMIS is thus a process whereby **health data are recorded, stored, retrieved and processed at various levels for decision making.**

Indicators

Monitoring and evaluation is an essential component for effective planning, implementation and corrective actions in the healthcare programs and policies and the backbone of a useful monitoring & evaluation system is formulation of relevant indicators.

“An indicator can be defined as a data element placed in a given context so that it becomes information that can be acted upon and can be used for programme monitoring and management ” .

An indicator, whether quantitative or qualitative, should provide a simple and reliable means to measure achievement, to reflect changes connected to an intervention, or to help assess the performance of a development actor.

HMIS indicators are in the form of rates, ratios and absolute numbers, and each has a threshold and target value whereby assessment of performance is based upon. In this respect the information is very useful in managing health delivery in the country at all levels of health delivery system in the country.

Crucial characteristics of a well formed indicator are title, definition, purpose, rationale, method of measurement, numerator, denominator, calculation, data collection method, data collection tool, data collection frequency, data disaggregation, guidelines to interpret and use data, strengths and weakness and challenges, and relevant sources of additional information .

Thus, Indicators can be classified into following groups:

- a.) **Input indicators:** indicate resources invested in the system, e.g., number of doctors per 100,000 people.
- b.) **Process indicators:** indicate activities of the health system, e.g., percentage of health workers trained for providing complete immunisation, doctors trained in emergency skills, safe delivery skills, etc
- c.) **Output indicators:** indicate achievements made in specific health strategies e.g. percentage of children who received complete immunisation or percentage of women who received 3 ANC's.
- d.) **Outcome indicators:** indicate achievements of a health programme or health system. e.g. Complete immunisation rate, institutional delivery rate, breastfeeding in one hour rate etc.
- e.) **Impact indicators:** indicate achievements in health status of particular group of people e.g. Maternal Mortality Ratio, Infant Mortality Rate, Total Fertility Rate etc.

Presently, around 248 data items on MCH, Family Planning, Disease Control program services, Infrastructure, Stocks, Financial, etc. have been inducted into the HMIS Portal (MoHFW, 2005).

A number of indicators that can be derived from the data elements are available in HMIS formats.

Each indicator should be well defined in the following format:

- a. Indicator name
- b. Definition of indicator
- c. Numerator and denominator for the indicator
- d. Rationale of indicator
- e. Actions to be considered by Programme Managers
- f. Suggested level of use.

These indicators can be used on monthly, quarterly and annual basis by Programme Managers for monitoring/ management of health services.

Some examples of indicators:

- **Delivery Service indicators** : Institutional Delivery Rate(Public facility)
 - Institutional Delivery rate (Public and private Facility)
 - Home Delivery Rate
 - Skilled Birth attendant delivery Rate
 - Caesarean Section rate
 - PNC (within 48 hrs)
 - PNC (between 48 hrs and 14 days)

Indicator: Institutional delivery Rate

Definition: Percentage of deliveries conducted at public and private facilities/ institutions

Numerator: Number of deliveries conducted at public and private institutions/ facilities

Denominator: Estimated deliveries

Multiplying factor: 100

Suggested level of use: state and district

Periodicity of indicator: Annual, biannual.

Rationale: The understanding of the deliveries conducted at various levels (Home, institutional and by SBA's) gives indication that improved health infrastructure and transport facilities has been responsible for reducing maternal mortality.

Actions to consider: Efforts should be made to improve the conditions (professional, social and financial acceptability) at the institutions.

Goals of HMIS

The major goal of HMIS is to provide quality information to support decision-making at all levels of the health care system.

Objectives of HMIS

- Provide quality information to support decision-making in the Health Sector
- Aide in setting performance targets at all levels of health service delivery
- Assist in assessing performance at all levels of the Health Sector
- Encourage use of Health information

Uses of HMIS

Information from the HMIS can be used in the following ways:

- Planning
- Epidemic prediction
- Epidemic detection
- Designing Diseases specific Interventions
- Monitoring Work plan performance
- Resource allocation

HMIS improves health management; which is pre-requisite for good health care delivery services and it fills the gap between disease occurrence (health problems) and the response of the health service providers.

Finally, it enables assessing health needs of the population (and its geographical variations); along with effectiveness and coverage of health programmes.

In addition, the revolutionary progress made in the IT sector and its integration into the HMIS has provided speedy access to micro-level data that may be updated frequently. This greatly facilitates evaluation and assessment, and the designing of appropriate remedial strategies as long as the data quality is of a high order.

However, despite the potentials the HMISs have; the collection, compilation, analysis and utilization of health data remains to be practically major problems in this system.

Although Health workers generate lot of data in the village, send it to the PHC, where it is compiled in the form of monthly reports and transferred to the secondary level. Primarily the flow of data remains unidirectional. In addition, a lot of data that the health workers collect is redundant or never utilized adequately.

To simplify it, a computerized management information system is one among the many ways that Information Technology (IT) can help improve the health system; IT can aid the workers in providing services, data collection, storage, analysis and dissemination of information

The overall goal of this system is to optimize the performance of health services at all levels of administration through the timely provision of necessary and sufficient information needed by the health managers to monitor, evaluate and plan their activities. Its success requires a system that is integrated, decentralized, functional and reliable.

Functioning of HMIS

The HMIS in India was introduced to provide data on service delivery, physical infrastructure and financial performance of all public health facilities included within the system like SCs, PHCs and CHCs that send data on a monthly basis using HMIS forms to the Block. This data is consolidated at the block level by the Block Program Managers and forwarded to the district. District Hospitals forward this data directly to the District Programme Manager. District-wise data is then forwarded to the State Health Mission, and then to the MoHFW. Data is checked for quality and consistency at the block, district and state levels, and feedbacks provided to facilities (denoted by broken lines). Periodically, a national level meeting is called, where the performance of states are reviewed.

Flow of information under HMIS

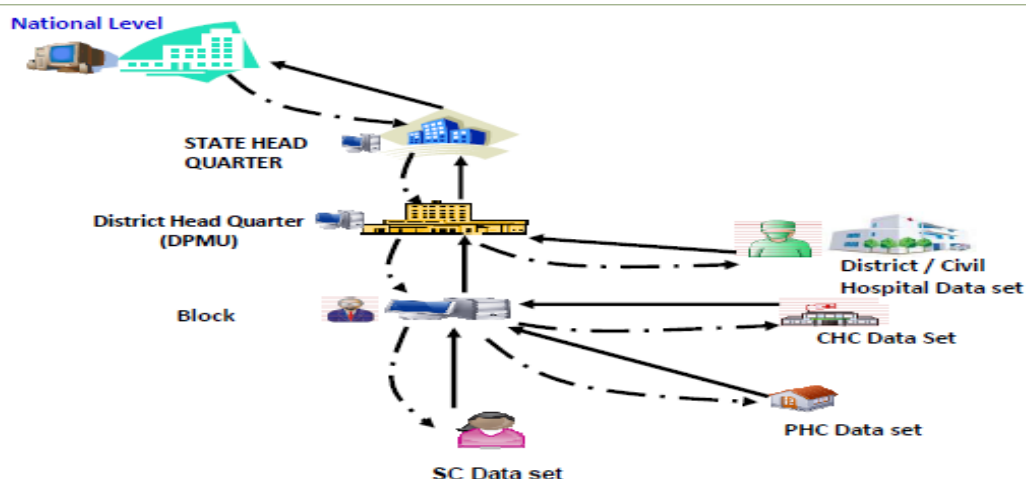


Fig.1 : Diagram showing the pathway of information flow under HMIS

The HMIS provides information on service delivery relating to maternal and child health care utilization including Ante Natal Care (ANC), Post Natal Care (PNC), immunization, Janani Suraksha Yojana (JSY) registration and beneficiary, and delivery details.

The focus of the MoFHW is to streamline the service delivery component of the HMIS and enhance its capacity to provide policy inputs to monitoring and planning activities. This is very important as maternal and child health is often considered to be the starting point for extending universal health.

Facilities also report on laboratory testing for disease like HIV, STI/RTI, and TB and cataract operation under Blindness Control Program. These data are available on a monthly basis

The data is available on the password protected HMIS web portal maintained by MoHFW (<http://nrhm-mis.nic.in>).

Although level of data uploading has been relatively satisfactory, quality of data remains a major challenge, with many of the validity rules broken and existence of outliers in many variables. Effective data uploading, too, needs to be improved.

Data entry forms a crucial aspect of HMIS. The paradigm shift from earlier paper-based data entry to Web-Based data entry has several potential strengths like streamlining and standardization of data records and creation of repository of integrated data emanating from all the areal units. It enables triangulation of data from alternate sources, generation of standardized technical and customized reports, development of indicators for temporal and spatial comparisons, etc. and can facilitate evidence based decisions. Computer based data

can also facilitate integration of various software applications like Geographical Information System (GIS).

Web-based HMIS Portal

The Web Based HMIS Portal was launched on **21st October, 2008** by Shri Naresh Dayal, Secretary for Health & Family Welfare. It has assumed importance over time being gateway to repository of health information on critical components like infrastructure, both physical and human resources, drugs and inventories, diagnostic services, availability and utilization of health services including obstetric, childcare, family planning, disease control, etc. in public as well as private health facilities



The Web Based HMIS Portal data facilitated consolidated reports at block and district level, which in turn gets transmitted to state and central level and gets placed in the public domain.

Facility based health data uploading was initiated from **1st April, 2010**. The facility level data included data pertaining to District Hospitals and Sub-District Hospitals, block level Community Health Centres, and sub-block level health facilities like Primary Health Centres and Sub-Centres.

For this purpose facility masters were created implying areal identifications and other details like mapping, rural urban locations, names, notional and physical categorization, etc. The

Portal facilitates flow of information from the facility level to the District, State and finally the Centre. The Portal facilitates users in generating standardized and customized reports and in analyzing the information facilitating local to district, state and centre level evidence based policy decisions.

Since introduction of **HMIS Web Portal** on 21st October 2008, on-line district level reporting has made lot of improvements in terms of uploading, validation commitments, and thereby analysis of quality data facilitated production of standard, customized and technical reports.

Much more intensified efforts are necessitated for improvements in consolidation and data quality because of tremendous increase in workload due to online transfer of facility based quality data about obstetric services rendered, children immunization, family planning, disease control programme, line deaths, etc. Further, data pertaining to availability and training of human resources, stock and utilization of drugs and diagnostic services, etc. has tremendously increased the workload of data uploading, quality checks, analysis, feedback, and generation of reports over the recent past.

Furthermore, launch of **Mother and Child Tracking System (MCTS)** portals in **December 2009**, encompassing name based data for pregnant women and children under mother and child tracking system (**MCTS**) would provide the quality data to achieve the desired objectives and health goals under NRHM.

Though, facility based data under HMIS and name based data under MCTS has tremendous potentials for improvements in the healthcare delivery system in India. However, completeness, coverage and quality of data, analysis, and timely feedback need added efforts and need to be prioritized for effective management of health system across India.

HMIS in Himachal Pradesh

State Profile

The hilly state of Himachal is situated in the north- west of the country (Himalayas). The land with wide variations in altitudes ranging from low hills to high mountains with lakes and flowing rivers. The state is having 12 districts with a population of 68,56,509 (2011 census). The state has an area of 55, 673 sq.km., 10.54% of the Himalayan land. Majority (91.3) of the population is in rural area.

Himachal Pradesh is one of the three leading states in India on the basis of 4 indicators. 1) Life expectancy 2) Literacy rate 3) Sex Ratio 4) Lower BPL % age. Based upon sex ratio, female literacy and life expectancy women are favourably placed in the State. Due to the large rural population and hostile geographic and weather conditions, the State is still backward and poor in terms of economy.



Fig.2 : Map of Himachal Pradesh

The state has fairly extensive network of health institutions.

There are **2071 Health Sub-Centres, 449 PHCs, 73 CHCs and 52 Sub-Divisional and Higher Hospitals in the State.**



The majority of households seek care from the public sector. Urban and Rural households equally utilize the services in the public medical sector.

The grass root health services provided by the health workers are required to monitor various aspects of health of women and children to provide information related to health and family welfare, Counsel and motivate women to adopt appropriate health and family welfare practices and deliver other selected services.

Functioning of HMIS in Himachal Pradesh

For the effective implementation of National Rural Health Mission in the State, a separate Mission Directorate (NRHM) has been created within the Directorate of Health headed by Mission Direct.

It has a Programme Management Unit (PMU) headed by Programme officers and a Financial Management Unit (FMU) headed by Controller Finance. The Mission Directorate functions in close co-ordination with Directorate of Health and reports to the Principal Secretary (Health). The plans and budget of the vertical programmes have been integrated in the State.

In Himachal Pradesh, the Mission is operating through the existing structures of Health Department up to Sub-Centre level. There is a State Health Mission at the State level chaired by Hon'ble Chief Minister. A District Health Mission has been constituted at District Level with Chief Medical Officer as Member Secretary and Deputy Commissioner as Convener. The Govt. has decided to constitute Rogi Kalyan Samities upto PHC level with increased public and Panchayati Raj partnership. The community is also involved in the functioning of health institutions through Village Health Committees at village level, Panchayat Sub-Committees on Health Education and Sanitation at Panchayat level and Rogi Kalyan Samities in all the Hospitals from PHC upwards.

The public health services in the rural areas at village level are delivered through Anganwadi Workers as Link Workers.



The Anganwadi Workers are already involved in anti natal registration of pregnant mothers, nutrition and immunization of children and providing of DOTs etc. Keeping in view the vast presence of Anganwadi Workers in the State (more than 18,000 Anganwadi's for 17,495 villages), the Department of Health and Family Welfare intends to utilize the strength of Anganwadi Workers for health delivery system at village level in place of ASHAs. There are 2071 Health Sub-Centres, 449 PHCs, 73 CHCs and 52 Sub-Divisional and Higher Hospitals in the State. The Sub-Centres are manned by a male and female health worker, a Medical Officer heads the PHC. There are 69 Block Medical Offices functioning in the State. The Chief Medical Officers control the implementation of all the programmes in their districts through Programme Officers and BMOs. At the Directorate level, the Director Health Services looks after general establishment, budget, planning and other programmes through additional / joint / Deputy Directors and other Programme Officers.

Reporting parameters under HMIS

Parameters defined for reporting under HMIS are as follows:

• Part A: RCH reporting (Monthly)

- ✓ ANC, Deliveries, C-Sections, Pregnancy Outcomes, Complicated pregnancies, PNC, MTP, RTI/STI, Family Planning, Child Immunisation, Vitamin-A, Childhood Diseases

- **Part B: National Disease Control Programmes (Monthly)**

- ✓ NPCB

- ✓ NVBDCP

- **Part C: Health Facility Services (Monthly)**

- ✓ Patient Services, Health Facility Services , Laboratory testing

- **Part D: Infrastructure (Annual)**

Data Entry Formats

Separate data entry formats are designed for:

1. Sub Centres (Form 6)

2. Primary Health Centres (Form 7)

3. Community Health Centres, Sub District Hospitals & District Hospitals (Form 8)

4. District Head quarters (Form 9)

5. State Head quarters

The formats cater to different services being provided at each level. The administrative headquarters-district/state has only stock data elements and no service data elements

Restructuring/ Rationalization of Health Information Management Systems

Architectural corrections on traditional manual HMIS were in following areas:

- Periodicity (monthly, quarterly, annual) for different indicators.
- Shift in reporting from area based reporting to facility based reporting.
- Utility of numerous indicators being collected Vs. usage or need of information
- Accrual basis of information
- Reduction in number of forms
- Block Headquarter to be HMIS hub at Sub-District level
- Single platform for reporting in Health Departments.
- Entering data of private facilities in the monthly reporting formats

Characteristics of HMIS Reporting

Integration of health related information across on-going programmes

Capturing the performance on various aspects of NVBDCP, NBCP, RCH, infrastructure details , Human resources.

Data Quality.

Data quality checks are inbuilt with detailed periodic reports, for each facility, based on checks meant to figure out outliers and validity issues in the reported data. **Around 52 validation checks have been developed** to check the consistency and quality of data on the HMIS Portal .

Flexibility in reporting

Reports can be customized allowing flexible inclusion of parameters like geographical area, facility, indicators and periodicity. This enables local use of data for management.

Healthcare facility mapping and Secure User ID & Password³

All states have been mapped up to sub-district level with census/notional villages. Facilities at District/ block level are given user IDs & passwords for entering and committing the data as per their preparedness.

Value added features

Export facility to Excel

Graphical Analysis in Charts

Data Flow

Flow of data comprise of data uploading and data committing. The latter is forwarding of data to next level after validation thus distributing the ownership of ensuring data quality.

Data uploading is done at facility level.



Fig # 3 Flow of data

In Himachal Pradesh, Health Management Information System has been implemented up to block level where facility wise data is being entered online using DHIS-2 Application. Once the data entry of all the facilities is completed at medical block level, the same is forwarded to district level.

The data at the district level is checked by the Monitoring & Evaluation / Statistical Cell and verified by the District Health Officer. After verification by the District Health officer, the same is forwarded to State HQ by all the districts. The consolidation of data at Block, District & State level is automatically done by the software application. At the State level, the data is analyzed for consistency and validation of data is also done.

After analyzing the data at the state level, feedback is sent to the districts and then it is finally forwarded to Ministry of Health & Family Welfare **by 20 of every month**. Following data sets are used under NRHM for reporting of data from facility level which is collected on monthly basis:

- MIES Data Set for Health Sub–Centre (HSC)
- MIES Data Set for PHC
- MIES Data Set for DH-SDH-CHC
- Monthly Stock Data Set for District HQ.

Parameters of data quality:

Factors like coverage, completeness, accuracy, frequency, reporting schedule, accessibility, power (Nina Frankel, 2007) affect the quality of data.

1) Completeness of data: The complete set of data elements should be made available in the manual registers to be then filled in to the portal. Factors leading to incomplete data

uploading varies from a range of typing errors, unavailability of data, confusion in data elements listed in next section in this chapter (threats to data quality)

2) Timeliness: Timeline stipulated for every level of data entry should be done under supportive supervision by the time. Online portal allows for major benefit of saving on time, calculations, retrieving of data, compilation. The system would only produce results if each facility level uploads data in time for reports to be compiled in time. Timelines are as below:

a. Monthly MIS forwarding:

- b. Facilities-5th of each month
- c. Districts- 10th of each month
- d. States- 20th of each month

e. Quarterly MIS, FMR forwarding:

- f. Districts- 10th of the month subsequent to quarter finished
- g. States-10th of the month subsequent to quarter finished

h. Annual MIS, infrastructure, facility:

- i. Before 5th April of next financial year

Types of Reports

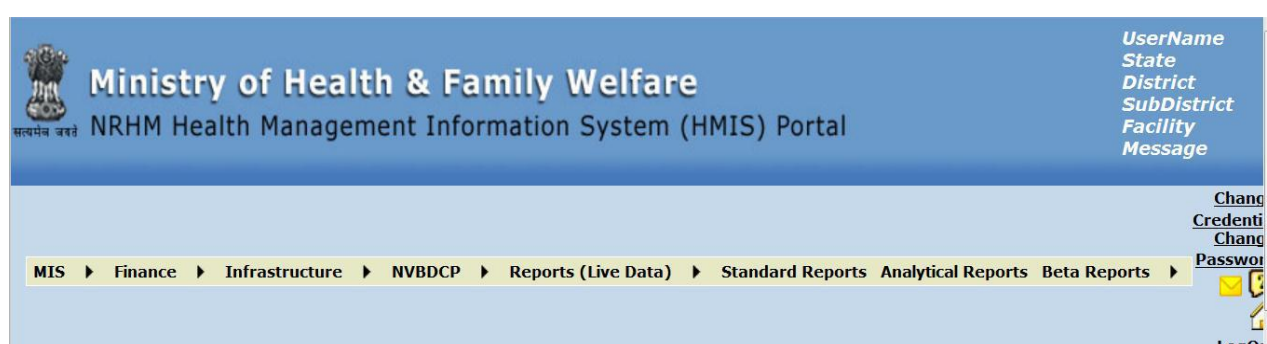


Fig # 4 : types of reports generated on the portal.

An overview of reports generated by the portal is as follows :

Serial No.	Main Reporting module	Sub type of report
1	MIS (Monthly, quarterly, yearly)	Search

2	Finance	Search
3	Infrastructure	Search
4	Reports live data	Data entry status
		Data Quality
		Data filled summary
		Generate reports
		Masters
		Status of data uploading
		PRC verify reports
		Compilation reports
		Block consolidation reports
5	Standard reports	Data reporting status
		Data item wise
		Data item wise comparison
		RCH report indicator wise
		RCH report state wise
		Facility master status
6	Analytical reports	High focus
		Non high focus
		State fact sheets
7	Beta reports	Indicator wise report
		% upload report

3) Data Aggregation

Data entry is expected to be done at the facility level and there after it gets aggregated up to National level in three steps:

- ✓ **First level - Block level aggregation of data:** All facility reports are consolidated to prepare the 'Block Monthly Consolidated Report'.
- ✓ **Second level - District Level aggregation of data:** Data from whole block and the district stock details are consolidated to prepare the 'District Monthly Consolidated Report'
- ✓ **Third level - State level aggregation of data:** All the monthly, quarterly and annual reports are generated and 'State Aggregated Report' is uploaded on the web portal.

Aggregation is carried out by accessing all District consolidated reports and all State specific data entry done at the State level (quarterly, FMR, annually).

These reports are electronically uploaded on the central Web Portal. Where ever State HMIS application is functional, one copy of the entire database is stored in the State HMIS application.

Though efforts are being made to bring the entire health system online, but the HMIS reporting at the sub centres is still done on paper formats.

Feedback Mechanism

Although the feedback was being provided during the monthly meetings at the lower level , it was only existent in verbal form with no proper records of performance of health workers. At district and state level feedback was being provided through emails from subsequent higher levels.

However, the feedback mechanism was not effectively operating at all levels. This lead to lack of motivation among the workers ass there was no incentives being provided for generating reliable and accurate data.

Software Application Used by NRHM

The state is using **District Health Information Software – DHIS-2**, a free and open source software solution, for their state information needs, which enables facility, based reporting, analysis, and also generates the required reports to electronically feed into the national web portal of Ministry of Health & Family Welfare. **From 2010, the state became one of the first few states in the country to start collecting sub centre wise data, which is being entered in the computers at Medical Health Blocks.** As a result, the state has a database of all facilities / health institutions, which allows the planners to conduct micro-level action, and allows district level health action plans to evolve truly “bottom up.” However, to institutionalize this process, there is a need for strengthening processes of active and systematic feedback to the peripheral facilities. The nature of feedback needs to be constructive and supporting action, rather than focusing on reprimand and punishment Thus HMIS has been implemented with the following objectives.

- ✓ To improve health system efficiency by processing and analyzing large amounts of data quickly.

- ✓ To produce a wide variety of outputs and feedback reports targeted for many levels of the health system from a single data set or by combining data set.
- ✓ To reduce the duplication of work, this is typically seen in many hierarchical data collection systems.
- ✓ To improve the quality of data collection through automatic validation during data entry and automatic preparation of immediate feedback reports on errors for individual health facilities.
- ✓ To improve analysis and information presentation to facilitate data interpretation and use for decision-making.
- ✓ Facility wise performance monitoring for managerial decision making.

Objective

General : To study HMIS in the health system.

Specific : To study data collection system (Input)

- To study the understanding/ knowledge of HMIS at grass root level.
- To describe the process of data generation, processing and transmission in the existing HMIS and routine reporting system
- To study the culture of appreciation and information use for decision making at various level.

Methodology/Steps taken.

The following tools were used to carry out the study .Some of them were purely used for understanding the patterns of reporting and exploratory study.

Secondary Data : Review of Reports, Forms, manual obtained from the HMIS Unit, Shimla for better understanding of the reporting patterns and gaps.

Primary data : Primary research has been the most crucial tool for obtaining the view point of grass root workers at the Sub Centres, data entry operators at the block/CHC level, Data entry operators at the District level, and Health managers at the District and State Levels.

Questionnaire : A semi – Structured Questionnaire for various levels formed the basis of the personal interview conducted to obtain the required information.

Study Type : Descriptive study

Study Area: Distt. Solan

Study Respondents :

State Level: State E – health Coordinator, MIS Consultant.

District Level: District Programme Officer, Data entry operator

Block level: Data Entry Operators.

Sub Centre : Health Workers (Male/ Female)

Sampling

A Single district was undertaken for Convenience sampling under which two blocks were covered representing the entire district.

20 SC's from Dharampur and Kandaghat block were taken through random sampling method and the ANM's were interviewed in relation to HMIS reporting.

At the block and district level the respective data entry operators were interviewed.

The State E – health Coordinator, was interviewed at the state level .

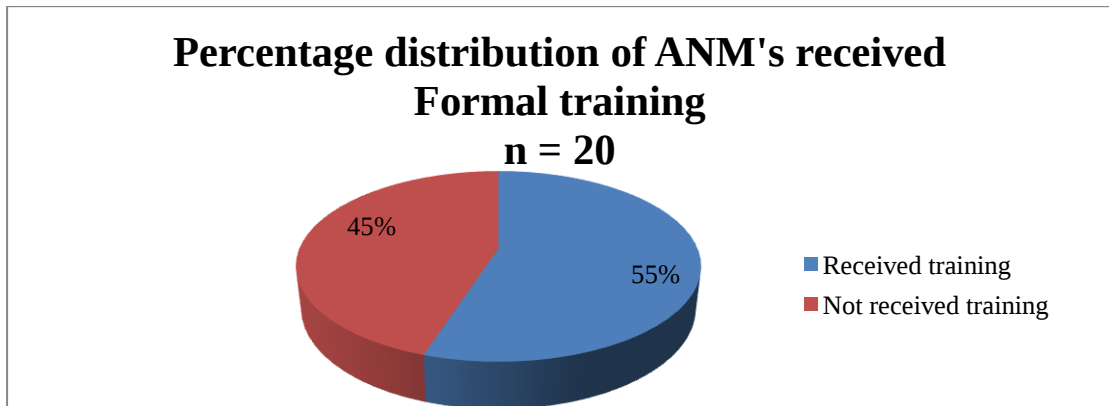
Data Collection tool : Questionnaire

Data Collection technique Personal Interview

Data analysis Software Spss.16

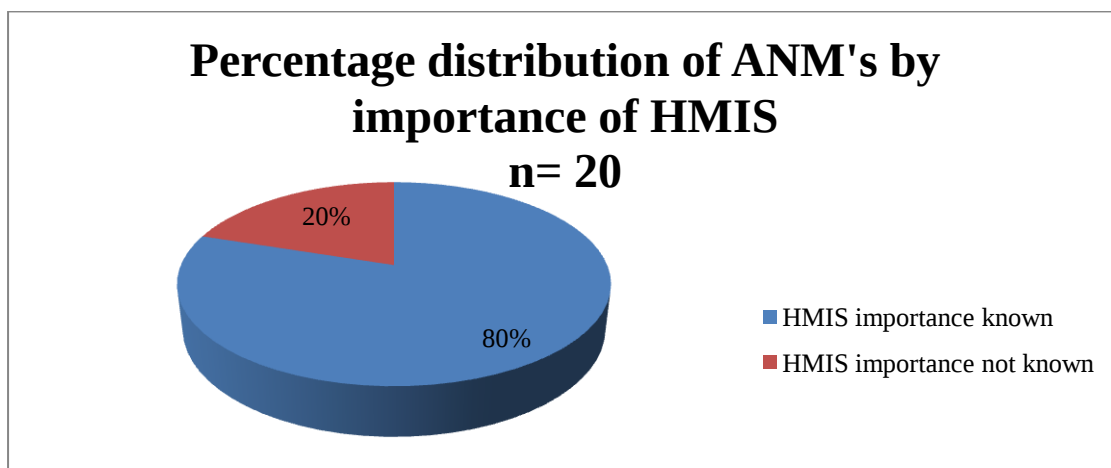
Findings

- **Formal Training on HMIS**



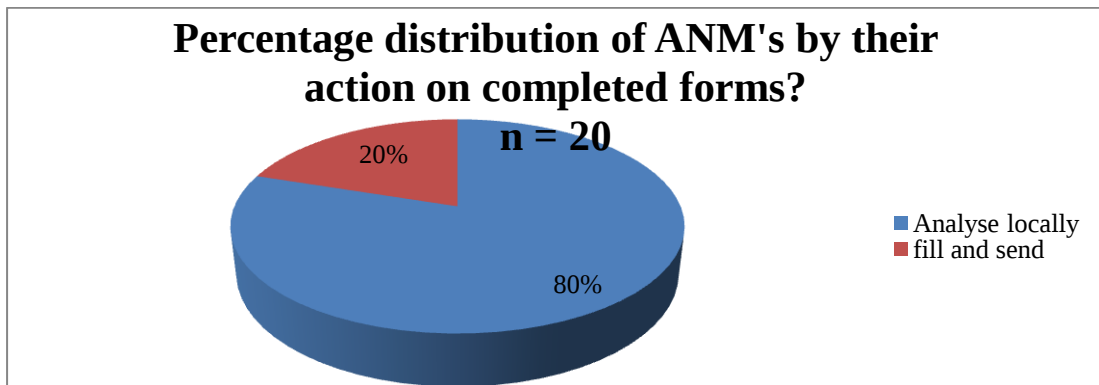
In response to whether they have been provided formal training on HMIS or not , more than half of the respondents (55%) agreed to have been given formal training. The rest 45% who did not receive formal training however agreed that they were addressed by their supervisors regarding HMIS during their monthly meetings but no formal training was given to them.

- **Importance of HMIS**



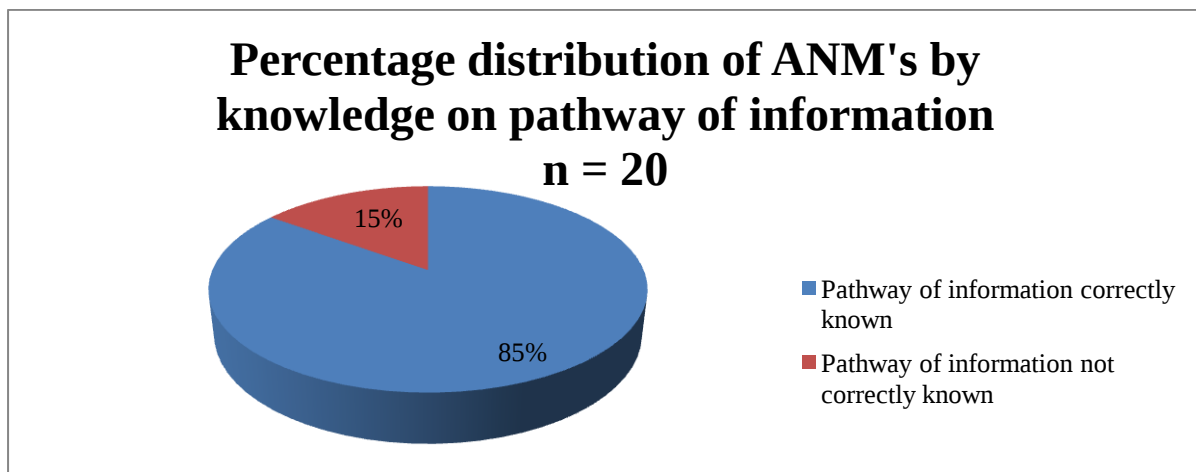
Amongst the 20 respondents , Majority (80%) acknowledged that HMIS plays an important role in improving health services whereas the rest 20% felt that HMIS had no significant contribution in improving health services. The generation of Work plans for subsequent month makes sure that services are provided on time and without fail and this information provided by HMIS helped them to plan monthly activities.

- **What is done with completed forms ?**



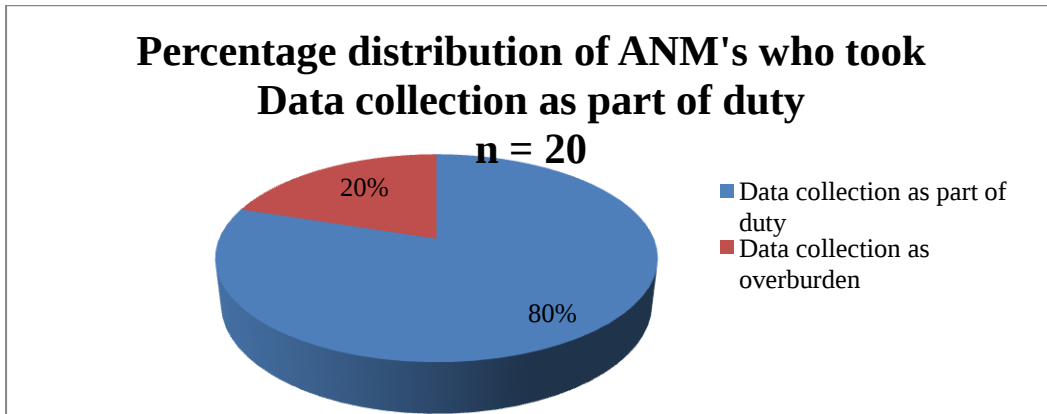
This supports the fact that 80% of the health workers who understood the importance of HMIS were also the ones (16) who used the data collected for local analyses in the form of progress of the health services, keeping track of Number of ANC's registered against expected etc. whereas the rest 20% who did not know the importance of HMIS were the ones who simply forwarded the forms without any analysis.

- **Pathway of Information**



More than two third(85%)of the respondents (17) could elaborate the pathway of information flow(from sub centre level to the state) correctly in the HMIS , whereas the rest 15% were either unaware or could not give the correct flow of HMIS information to higher levels.

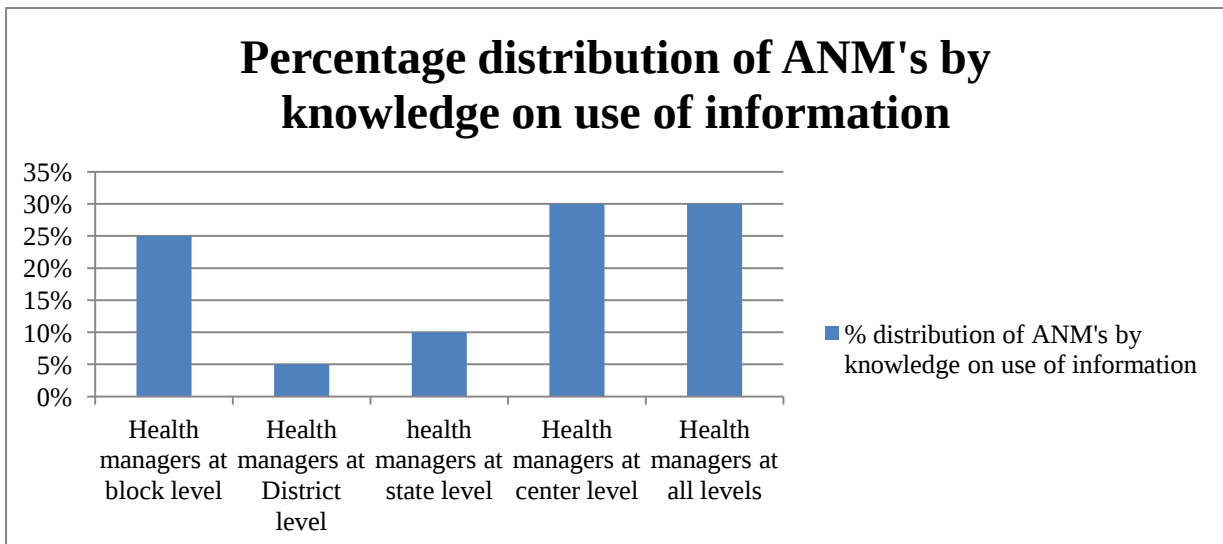
- **Data collection as part of duty**



Majority (80%) of the respondents considered HMIS data collection as part of duty whereas the remaining , considered it as work overload since they already had other tasks to complete like field visits ,immunisation days along with various registers to maintain.(O.P.D, financial)

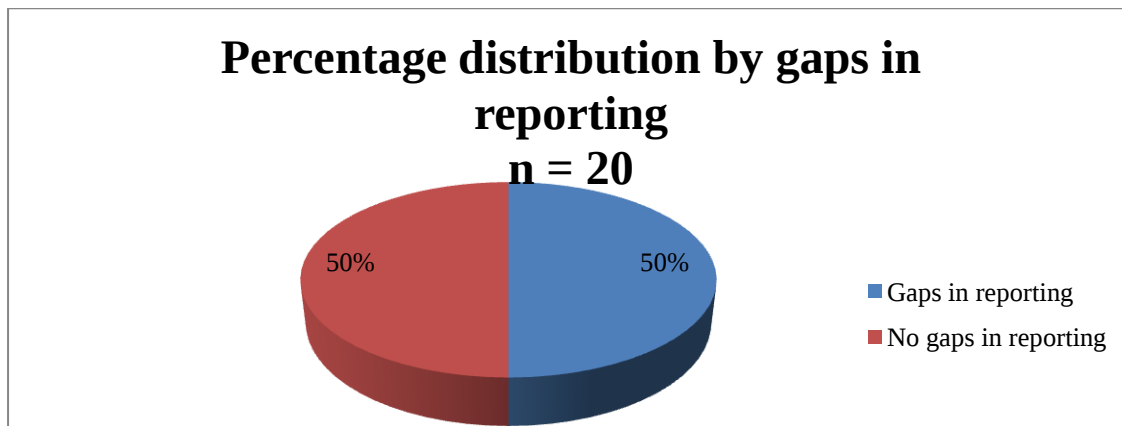
Though HMIS data entry was online from the block level onwards but the data entry at the grass root level was still done on papers. This made data entry an additional task.

- **Who Utilises the information generated from HMIS data?**

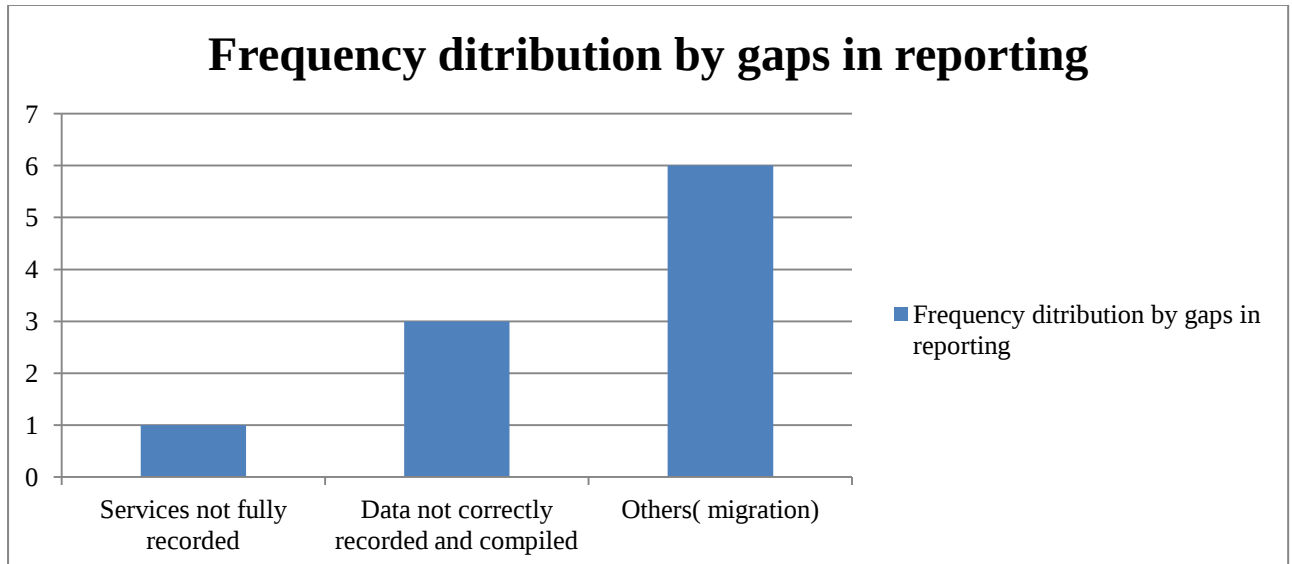


Nearly one third of the respondents (30%) believed that the information generated by them in HMIS forms was used at the centre level or it found its use at all levels and only five percent of them believed that the information was used at the district level. One fourth of them believed that the blocks used the information generated.

- **Gap between services provided and reported**

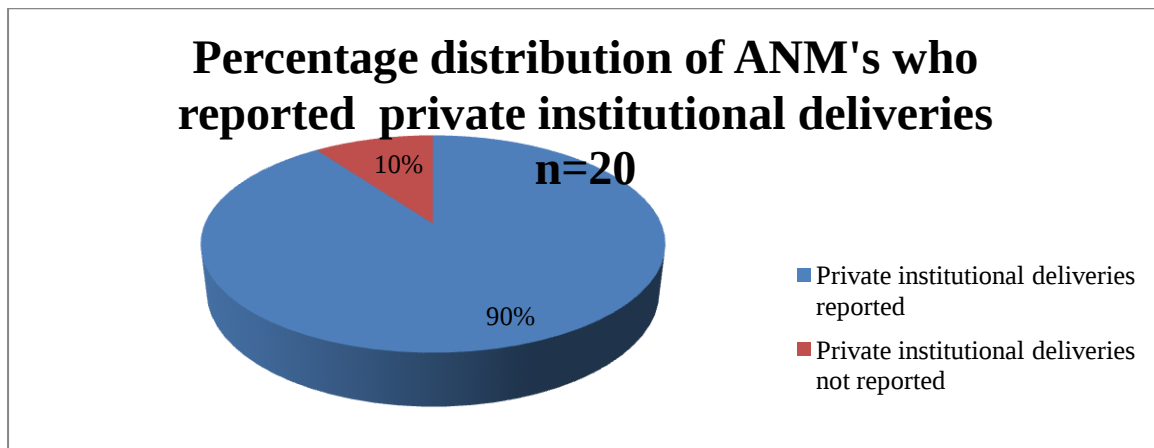


Almost half of the respondents found that there existed a gap between the services provided and recorded. Majority of these, felt that migration / services provided to migrants was an overlooked issue under HMIS reporting. The migrants were under record as long as they availed services but once they left the area, their due services, tracing did not occur leading to incomplete information in HMIS records .



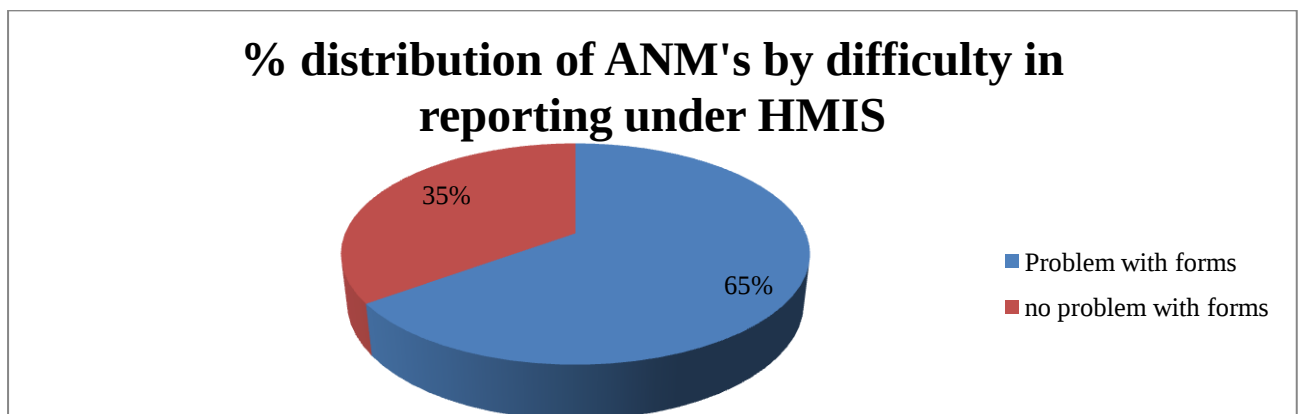
Also, some of the respondents (3) believed that although they were providing services, they could not record or compile it efficiently. and another few felt that services provided by them were not being fully recorded. E.g the Hb kit was being used at times and not at others that led to improper Use/recording of the services.

- **Reporting of Children born in private institutions**



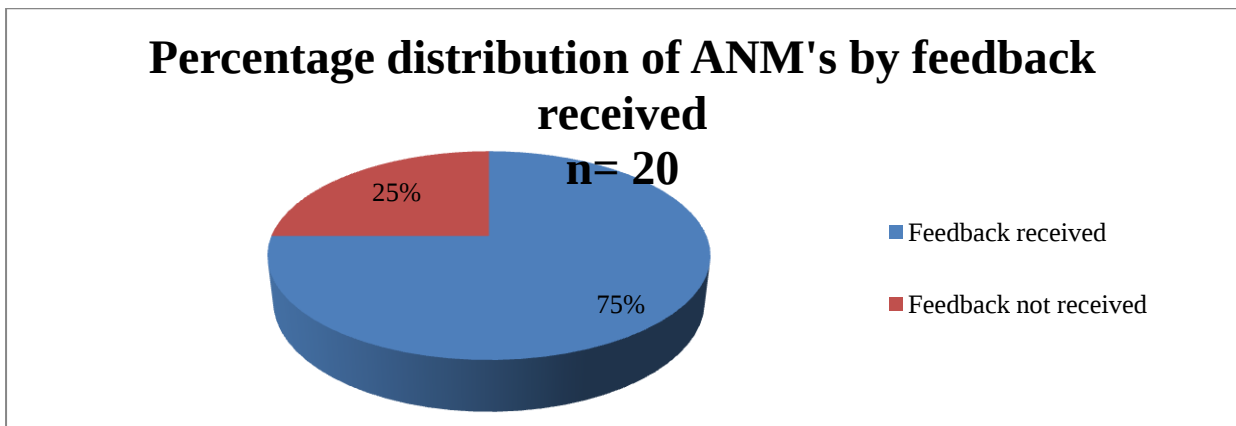
The study reveals that majority (90%) of the deliveries occurring in private institutions were being registered at the sub canter level but the reporting was not occurring from all private institutions as data from these institutions was not being completely covered under HMIS records .However efforts were being made to get all services from these institutions get reported in HMIS forms like all other government institutions.

- **Difficulty in reporting under HMIS**



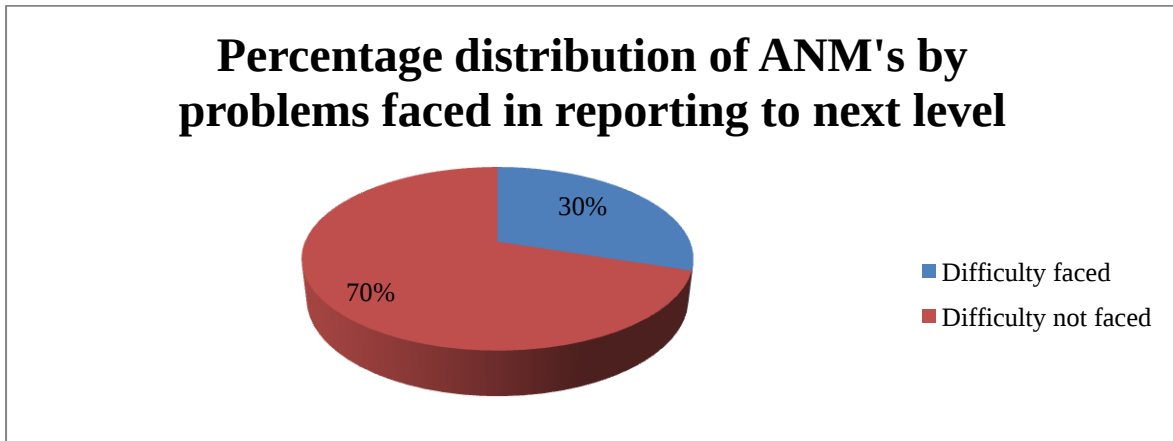
Majority of the respondents (65%) agreed that they faced difficulty in reporting under the existing system .Amongst those who faced problem more than half of them (54 percent) faced shortage of forms or unavailability of forms when needed along with poor quality of forms or misprints in the forms.

- Do you get feedback on results you send up



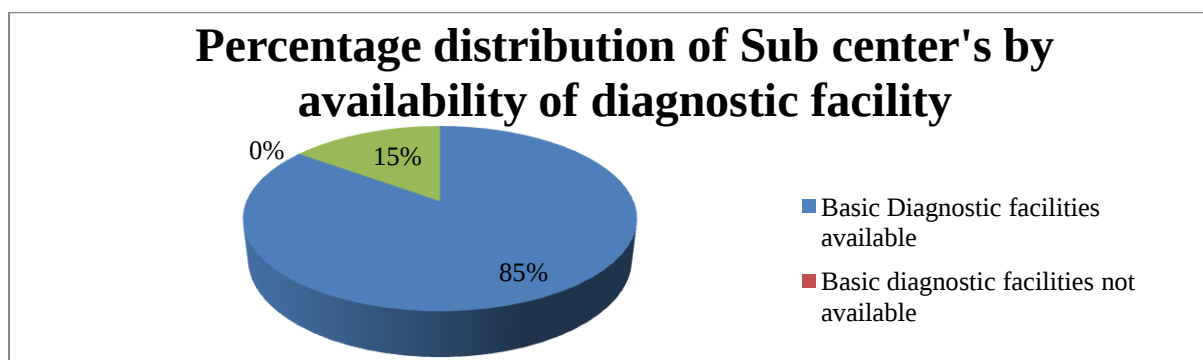
Three fourth(75%) of the respondents received feedback from their immediate supervisors during the monthly meetings. Amongst those who received feedback , **majority (87%) of them got feedback in verbal form whereas only 13 % of them received written feedback** which clearly shows that the feedback was not officially associated with the performance of Sub centre workers.

- Do you face problems in reporting to next level?



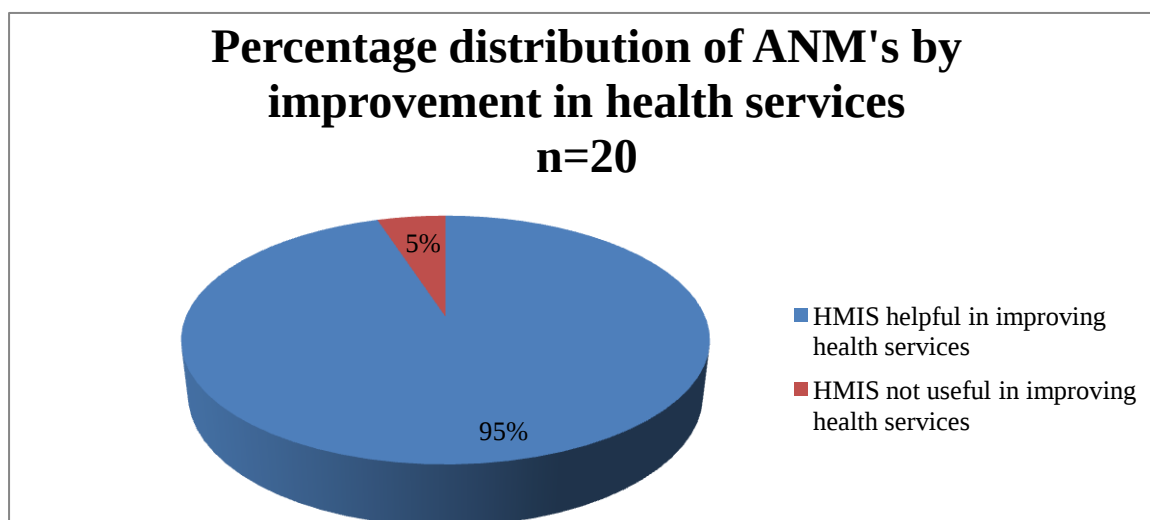
Nearly two third of the respondents found no difficulty in reporting to the next level of information flow. However, they agreed that although the introduction of the mobile reporting system had simplified the process and they found reporting through Mobile much simpler and convenient to use however, the facility was currently not functional during the study. Amongst those who faced problem, non functioning of mobile reporting was a major concern for majority (83 percent) . Another issue was the travelling to far away areas for reporting or monthly meetings .

- **Availability Of diagnostic services at Sub –Center level**



Almost all of the sub centres were well equipped with the basic diagnostic facilities including weighing machine, Hb kit , B.p monitors, stethoscopes etc but Only 85% had the equipments in working condition , the remaining 15% though had the facility but the equipments were not in working order or could not be used due to other reasons .For E.g insufficient water supply to wash equipments.

Has HMIS been useful in improving health services



Majority of the respondents (95%)accepted that Health Management Information System had been helpful in improving health services as the various parameters under the system need an insight of the prevailing health conditions amongst the population. The increased level of health awareness amongst people and the availing of facilities provided by the government like the Janani Suraksha Yojna are recorded to know the number of mothers' benefitted.

The generation of monthly workplan at the block level has helped the ANM's perform their duty more effectively making their approach clear.

Block level

A semi- structured questionnaire was made the basis for taking information from the block level data entry operators to know the issues at block level.

Both the respondents were post graduate diploma holders in computer application and designated as MIS operators with work experience less than 5 years.

The respondents agreed to have been given formal training on HMIS through a three day training schedule at the state level ,the recent being in January ,2013.

In response to the importance of HMIS , both of them said that they are aware of the Purpose of HMIS “*It gives us correct information of fields*”.

The second response was quoted as “ HMIS is very useful to know about the structure and position of health status, facilities provided by the institutions and also for evaluation and Health programmes.”

Both the respondents accepted that they were provided with enough/sufficient equipment for HMIS operations including Working PC/ desktop , Easy net connectivity, access to data/data validation. However only one of the block operators believed that there is sufficient manpower at the block level.

Both the respondents agreed that they do not face any problem in reporting/sending information to the next level and that the reporting from the lower facilities was on time and complete in all data elements.

The reporting format was thought to be simple and the reporting was done on monthly basis with 6 th of every month as the last date for report submission.

The response to the question ‘Do you think HMIS is useful in improving health services both gave a positive reply and said “ *HMIS is useful in improving the health services because it tells us information in figures correctly.*”

The second respondent replied “The primary function of HMIS is in decision making and it provides supports to the local management in becoming effectively functional.”

The services that are not utilised by the beneficiaries were recorded as “ zero ” in the final reporting. However , both the respondents were not using the information from the data for design of plan in their work and they simply used to collect data and send it up for analysis.

Validation rules were applied to the data collected by both the respondents.

In response to the question : Where do you think the data collected finds its maximum use.?

There was different response as one of the respondents said it was used for planning and budgeting , the second response was data is used for evaluation and health programmes.

Feedback

Both the respondents said they provided feedback to the facilities reporting to them , and also received feedback on the results they send up.

The frequency of receiving feedback was reported as monthly in the form of supervision by the district operator. It was once in a while but written feedback for the other respondent.

Finally in response to How can the existing Health Information System be improved. The respondent said “ HMIS can be improved by receiving proper, timely and correct information.

District Level

At the district level, the data compiled and uploaded by the block level data operators is undertaken for scrutiny by the Computer assistant which acts as the final link in transferring data from the lower health facilities to the state.

The Computer Assistant at the district level works as the District level data entry operators.

According to the response from the respondent the following information was gathered.

The respondent under study agreed to have been exposed to formal training at state level on HMIS and had work experience of more than 5 years.

On questioning about the importance of HMIS ,the respondent considered it important for *“compiling the reports and to save the data base.”*

However ,there were problems faced in reporting/sending to next level in the form of

- Institutions not sending their reports on time
- The reports received are of poor quality.

Though the data collected from the lower facilities is complete in all data elements it is not reported timely.

The HMIS reports are sent to higher level on quarterly and yearly basis along with monthly reporting.The current format of HMIS reporting is reported to be easy to handle.

On replying to the role of HMIS in improving health services it was said that “ HMIS is *useful in improving health services as it provides storage of data at all levels*”.

The respondent agreed to have used the data for design of plan for their own work before sending it to higher level.

On being questioned whether the district HMIS unit have enough capacity to collect reliable data and generate required information, the response was positive.

According to the respondent, validation rules were applied to the collected data, and the data on HMIS finds its maximum use for evaluation and health programmes at higher levels.

On being asked whether they receive any feedback on the results that are sent up?

The reply was positive as the data entry operators at the district level received monthly written feedback.

On enquiring about the gaps that they feel exist between the information that is generated and the information they need...it was answered as the *“Gaps are seen in the reports as the data elements may be filled up with wrong figures.”*

In response to the question to give suggestions on how the existing HMIs can be improved the respondent said *“ Training to health workers and health staff .”* can be helpful.

The District programme officer was also interviewed to get an overview of the managerial issues.

The following information was generated in response to concerned questions.

The respondent agreed to have received formal training on HMIS six months back.

And it was agreed that currently there is no problem being faced in reporting / sending information to next level. The district HMIS unit was reported to have enough capacity to collect reliable data /information.

In response to “where do you find data on HMIS finds its maximum use ?

The reply was in addition to policy making, planning, budgeting, evaluation and health programmes, the data was also used for making district health plans, to know about epidemics and to know about target achievements.

The Gap that the officer felt existed between the information gathered and information needed was that **effective analysis was not operational.**

Time constraint was enlisted as the most important factor that hinders the managers to effectively utilize the information recorded in HMIS.

Finally, the following Suggestions for improving the existing HMIS were provided by him

- Enough time shall be given to analyse the reports.(Monthly, yearly)
- Sufficient manpower- The HMIS working unit should have efficient, skilled workers who should be well trained on regular basis to keep technical updates.
- Data entry operators should be given adequate, timely feedback at state level for performance improvement.

State Level

Finally the issues that were revealed during the interview conducted with the State E – Health Coordinator are as follows.

According to the respondent there is a separate responsible unit for HMIS in the state that has been working adequately. However, there are no problems being faced in reporting / sending information to the next level. There were Disincentives being used as enforcement tools to monitor data collection and reporting of health facilities. The Respondent agreed that the reporting from the districts is not complete in all data elements and Health Facility Services (part C) is the section that is least reported. On being asked whether you get reliable reports from the respective administrative and facility levels, the response was positive. The reporting format is said to be easy and the reports are received on time from the respective health institutions.

In response to question on whether they feel HMIS is useful in improving health services? as There was a positive reply as they felt it was a useful tool for effective supervision and planning even at micro levels.” The data from HMIS finds its maximum use in all of the following i.e policy making, planning and budgeting, evaluation and health programmes. On being questioned about how satisfied are you with the technology/skill level of new recruits and their proficiency with computer skills ,the answer was “ satisfactory”. Steps like increase in recruitments, implementation of training programmes have been undertaken to overcome skill deficiencies in new recruits/ existing employee action to overcome skill deficiency.

The biggest Challenge /issue according to him in the working of HMIS in the state was Connectivity issues at field level, if they want to start data entry at PHC level. Also, he agreed that the centre was providing adequate assistance to the state in implementation of HMIS.

Feedback:

There was feedback being given to reporting units under the state and received feedback on the results that are sent up on monthly basis through email. The respondent felt that gap existed between the information gathered and information that is needed in the form of validity of information that has to be ensured at the level of data entry for which steps are being undertaken

Conclusion

- ✓ The study of HMIS in the area shows that the HMIS was introduced with Top – down approach without adequately preparing the facility/block level staff for their critical roles.
- ✓ ANM's are working as grass root workers due to non existence of ASHA's in the state.
- ✓ Though the present HMIS form/format was simple to understand and easy to fill, need for redesigning the form was felt. Also, most of the health workers felt mobile reporting was much more easier , although it was not presently working in the state .
- ✓ The grass root workers are not being given adequate support in the form of helping staff, motivation and timely and well planned training sessions for knowledge updation.
- ✓ Reporting under HMIS from the Private institutions is being emphasised, which is presently incomplete .Although health workers are now making sure that the children born in private institutions are reported correctly.
- ✓ The feedback system though present in the system is only in the form of supervision for the ANM's at the sub centre level and subdistrict level with no proper records for future references.
- ✓ Lack of ownership in grass root workers as they are not able to successfully relate their efforts with the health outcomes.

References:

- 1) Introductory Document : Capacity Building to Improve Data Quality under HMIS and MCTS portals .(HMIS and MCTS team , National Institute of Health and Family welfare , Munirka, New Delhi)
- 2) Health Programme manager's Manual: Understanding Health Management Information systems (National Rural Health Mission, Ministry of Health and Family Welfare, Government of India, New Delhi)
- 3) Toledo HMIS : Guide to data Quality.
- 4) Introduction to Quality issues in HMIS data (nhsrindia.org)
- 5) Chapter 1 and 2 (NRHM document)
- 6) Issues in national and sub national and Sub-national information system.

Annexure 1

Questionnaire

Form id-/ Date.....

This study is being conducted to assess the implementation of HMIS in the state of Himachal Pradesh, and it specifically seeks to understand the factors that may affect its effective implementation at the health facility level.

The following questions are to get an idea of your understanding of the HMIS and the current issues faced in the effective implementation.

Name (Optional).....

Age..... Sex.....Qualification.....

Place of Posting

1.) Name of the facility:

2.) Category of the facility:

- a) Hospital
- b) CHC
- c) PHC
- d) SC
- e) Others (specify).....

3.) Designation

4.) Working experience :

- a) Less than 10 years
- b) More than 10 years

5.) Have you ever been exposed to any formal training on HMIS ?

- a) Yes
- b) No

If Yes, When was the last training schedule attended.....

6.) Do you know the purpose/ importance of HMIS:

- a) Yes b) No

If yes elaborate.....

.....

7.) What do you do with the forms when you have completed them.

- a) Analyse locally b) Fill and send

c) Others(Specify).....

8.) Do you know where is this information to be sent(On basis of flow of information)

- a) Correct b) Incorrect

9.). What is your opinion about the convenience of recording on the current formats?

- a) Simple b) Difficult to manage c) Time consuming

If your answer is difficult to manage please give your reasons.....

.....

10.). Do You take Data Collection as part of your duty ?

- | | |
|--------|--------|
| a) Yes | b) No |
|--------|--------|

11). Do you think you have enough diagnostic facility?

- Yes b) No

12.) Do you face problems in reporting / sending information to the next level?

- a) Yes b) No

If Yes, Elaborate.....

.....

13.) How frequently is the HMIS information/ report supposed to be sent to higher levels?

- a) Yearly

b) Twice in a year

c) Quarterly

d) Monthly

e)Others.....

Last date for submission of forms.....

14.) Do you face difficulty/ problem in reporting under HMIS?

a) Yes

b) No

If No, Skip to question No.16

15.) If Yes What is it?

a) Unavailability of forms

b) Poor quality of forms/ misprints

c) Difficult language

d) Difficult terminology

e) Others

16) .How do you report the elements / services that are not utilised by beneficiary?

a) Leave them Vacant

b) Enter Zero

c) Enter anonymous number based on previous records.

17.) Do you make entries of children born in private institutions?

a) Yes

b) No

18). Do you provide a new ID to a patient who has already visited sum other SC or Hospital?

a) Yes

b) No

What do you do to make sure that duplicacy is avoided.....

19). Do you feel any gap between the services you provide and the report you generate with the available data?

- a) Yes b) No

If Yes , What are the possible reasons?

- a) Services are not fully recorded
b) Data are not recorded correctly
c) Data are not properly recorded and compiled
d) Others (specify)_____

20.) Who is supposed to utilize the information which you collect and record in the HMIS registers/booklets/Forms?

- a) Health managers at block level
b) Health managers at district level
c) Health managers at State level
d) Others(specify).....

21). For what purposes do you think the data collected is used? Rank them in order of preference.

- a) Policy-making
b) Planning and budgeting.....
c) Evaluation of health programs.....
d)Others (specify)/ Dont Know.....

22.) Do you feel HMIS is useful in improving health services ?

- a) Yes b) No

If No, Specify reasons.....

.....

If Yes, Specify reasons.....

.....

23.) Where do you enter important data / information that has not been provided any columns in the form.....

.....

.

24). Whom do you refer in case of doubts regarding work?

.....

25.). Do you ever get feedback on results you send up?

a) Yes b) No

If No, Skip to Question No .27

26.). If Yes, How often?

- a) Every Month
- b) Quarterly in year
- c) Twice a year
- d) Once yearly
- e) Once in a while

27.). If Yes, in what form do you get the feedback?

- a) Supervision
- b) Written feedback
- c) Reports
- d) Any Other (specify).....

28.) In your opinion what should be done to improve HMIS working ?.....

.....