



## BENEFITS AND CHALLENGES IN IMPLEMENTATION OF HEALTH MANAGEMENT INFORMATION SYSTEM IN SOLAN DISTRICT OF HIMACHAL PRADESH :

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### ABSTRACT

Before the advent of computers based data collection, data was historically collected on paper with help of a set of prescribed forms. From data being collected on papers, notebooks and spreadsheets to applications with hundreds of modules and functionalities to generate reports, the health information systems have now evolved to become a complex technology. Health information systems, besides being a tool for recording data, helps in providing an alert and early warning for epidemics, supports patient and health facility management, enables planning, supporting and stimulating research, permits health situation and trends analysis, and underpins communication of health challenges to diverse users. The Health Management Information System (HMIS) is the only data source in India at the facility level capable of providing micro-level information every month for improving the delivery of health care services. The purpose of this paper was to critically analyse the challenges to HMIS and to propose recommendations that would improve the collection of quality data at all levels in the system.

**KEYWORDS :** Health Management Information System, health care, HMIS.

### Introduction

An effective management of healthcare services requires monitoring of the health status of the population, provision of services in terms of coverage and utility, availability and status of equipment, drug stocks and human resources, and finances on a regular basis. This essentially requires timely and accurate information from various sources, so as to help healthcare managers to identify weaknesses in health service provision and take actions accordingly for improvement. The development of an effective information system is a necessary precursor to managerial improvement.<sup>[1]</sup> Understanding the importance of data for better health care delivery, World Health Organization (WHO) highlighted the need of HMIS in 1986. WHO has laid down four key functions of HMIS: data generation, compilation, analysis and synthesis, which makes HMIS an important tool for planning and management of health programmes. The health management information system stores the data related to the health of the population, and it is further converted into information for effective decision making.<sup>[2]</sup>

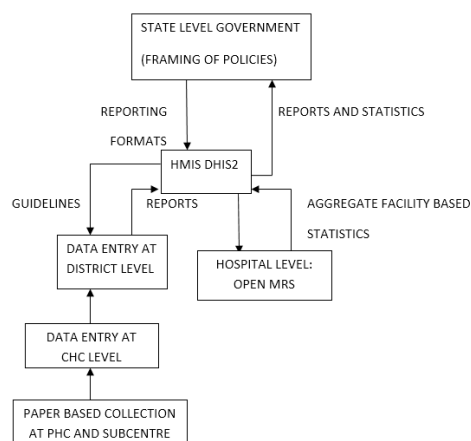
HMIS enables monitoring of pre-defined health indicators and facilitates decision making by the HMIS enables it-health administrators for policy and strategic decisions. HMIS has enabled provision of better care to patients by automating all the major functional areas of healthcare delivery system, which ultimately help in overall improvement of public health.<sup>[4]</sup>

The introduction of the Nation Rural Health Mission in India increased the demand for micro-level data on population and health and so the Government of India launched a national portal-based HMIS in 2008 as a bold and innovative step.<sup>[3]</sup> Unfortunately, health system of India is still ranked 118 among 191 WHO member countries on health performance. One of the reasons for this is poor management of health programs.<sup>[5]</sup>

### Methodology

This study was done in Solan district of Himachal Pradesh in order to assess the benefits and challenges of the health information management system. Three blocks in Solan district: Arki, Dharampur and Syri were randomly selected by lottery method and a total number of 15 PHCs, 3 CHCs, 3 civil hospitals and one district hospital were visited and in depth semi-structured interviews were carried out with 30 ANMs, 10 data entry operators, 5 medical officers, 3 programme managers and district MIS co-ordinator in October-November, 2017. The interviews, taken in Hindi language were recorded and were further transcribed in English language. These transcripts were then entered into the computer software ATLAS.ti version 6.1.1, coded and then analysed.

### Structure of HMIS in Himachal Pradesh:



The data is collected in reproductive and child health registers by the health workers and compiled in paper based HMIS formats at sub centres and submitted to respective PHCs. PHCs further send their reports to CHCs after completion of data entry. After the reports of all CHCs are compiled, they are sent to the district HMIS co-ordinator electronically, who gets reports from all the district and private hospitals. They combine all the reports, analyse it and present it in the monthly meeting at the district hospital to discuss the issues and address them.

### Analysis:

all the respondents were of the view that HMIS is beneficial to the system and that its implementation can certainly play a major role in achieving health for all. The health workers said that they looked at the HMIS reports as the assessment of their monthly work and this keeps them motivated as it acts as a proof that they have contributed in improving health conditions of the people. All the respondents felt that this tool of monitoring and evaluation, enables in planning for budgets and in assessing the requirement of inputs (infrastructure, equipments, and human resources) for efficient allocation of resources. The programme managers and MIS co-ordinator said that it immensely improves reporting, is a medium of storing data and helps to prepare work plans. But each of the respondents was of the view that there are certain loop holes in HMIS which limit the potential of the information system.

Quality of data can be assessed following a cascading structure that

flows from five main dimensions: integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility.<sup>6</sup> The data entry operators, MIS co-ordinators and programme managers felt that there are serious issues with all these aspects of data quality. The health workers iterated that collection of data addressing the maternal and childcare needs training and regular supervision. They said that the quality lacks because there is no supportive supervision and they continue to fill in the entries according to their understanding. They said the formats are not friendly and keep on changing with modifications within months and thus it gets tough for them to understand and completely get used to the formats. The data entry operators told that many a times, data on hard copies provided by health workers from sub-centres and PHCs are wrong and while they enter it into the system, the system does not accept the faulty data, so they have to manipulate the data accordingly due to shortage of time. The healthcare delivery system itself questioning the credibility of the data becomes an issue of grave concern.

HMIS was implemented to enable less-paper process. But currently along with entry into the system, all the paper work and maintenance of data in registers is mandatory. The health workers and even the programme managers are of the view that the registers are ill designed, and too heavy to be carried everyday to the field. There is no rational structure evolved for human resource management in HMIS, resulting in data overload without analysis at different administrative levels. The health workers who are responsible for the collection and reporting of the data are already burdened with so many duties that they tend to neglect data collection on regular basis. Due to hilly terrain, they have to travel for hours to reach their respective areas and collecting so much data in a month along with other work becomes humanly impossible for them. There are no incentives or motivation for reporting of data, so they focus the least on this aspect. All the respondents are of view that serious capacity building efforts need to be made for recording, reporting and geographical coverage of burden of disease for better future estimates.

Health information systems must be adapted to their environment and to user capabilities. Lack of continuous power supply and interrupted internet facilities pose the biggest threat to real time entry of data in the system. The data entry operators said that due to these problems, there is lot of wastage of time, and therefore they always lag behind in entry of the data which leads to piles of pending work. The quality of data is decreased and the main purpose of data recording is not met because of delayed entries.

The programme managers also felt that presently, HMIS data interpretation is target oriented and solely dependent on raw facts, figures and statistical analysis. Interpretations are not sensitive to social groups, caste, gender, and marginalization. There is need of disaggregation of data for better performance and to address the persistent inequities. There is no provision for entry for the migrant population which poses inadequacies during the time of analysis of the data and during planning for the resources.

One of the main issues identified by respondent was that there is no analysis of data at different levels with minimal sign of consumption of data at the generation level. The issues relating to HMIS are not discussed at ground level for improvement of the health status using HMIS. So, health workers feel reluctant to fill in the data as at their levels as it is of no use to them. The programme managers said that they doubt utilization of HMIS as an effective tool for planning, managing and decision making at policy level. The policies need more rigorous inputs from inferences of HMIS data for improvements and the feedback mechanism for improvement of HMIS, which are currently not well defined needs to be strengthened.

#### Recommendations:

There is a dire need of increasing the work force so that there is timely collection and reporting of the data. Involvement of health

workers from the communities in designing of the formats for HMIS and reproductive and child health registers is essential so that these become user friendly and cater to the needs of the population. Creating a nationally accepted format for all the regions of this diverse country is not solving the purpose as the disease profile and requirements vary even within the states, the format should be made flexible according to the requirements of the regions so that states can modify it according to their needs. Tiwari et al also pointed out that HMIS does not generate data on adverse events, for example, adverse event due to vaccination of children, failures of family planning methods, deaths during delivery, preventable deaths, etc., therefore accordingly HMIS formats should be evaluated from time to time to add or delete questions.<sup>7</sup> Time to time trainings and assessments of the professionals should be done because those who fill the forms and those who evaluate or analyse these forms lack complete knowledge and understanding of the framed questions in the forms. All the data entries in the computer should be done in presence of the staff that has entered the data in the registers and paper formats to avoid all confusions. The higher authorities should demonstrate to those engaged in data collection and analysis that how this is essential for the benefit of society. The internet issues should be kept in check, the introduction of ANMOL tablets in the region is a good step to address this, though that has its own limitations. The analysis of the data should be done at generation level itself and should be used for organizational development. If HMIS directly benefits the health workers and aids them in their work, it will lead to production of higher quality data and a sustainable system. Transparency and public scrutiny in information are important in any health information system. There is strong evidence to support the fact that transparency and public reporting on the performance of health care organizations lead to accountability.<sup>8</sup> The strengthening of information systems in healthcare can change the grim picture of public healthcare system.<sup>9-14</sup>

#### Conclusion:

Health Management information System is one of the six building blocks essential for health systems strengthening.<sup>15</sup> A good health information system brings together all relevant partners to ensure that users of health information have access to reliable, authoritative, useable, understandable, and comparative data about the health needs of the population. Information is of little value if it is not available in formats that meet the needs of multiple users – policy-makers, planners, managers, health care providers, communities, individuals. In India, HMIS has not been able to yield nationally representative data on diseases and related risk factors, health insurance, use of medical facilities etc. Operational problems do exist that diminish information timeliness, accessibility, and accuracy; and so policies and procedures may not have been sufficiently tailored to reflect the realities but appropriate steps must be taken in order to receive complete benefits of HMIS as an aid to plan for universal health coverage.

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