

Health Management Information System (HIMS): An Overview

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Introduction

The health system, especially in developing countries has changed drastically in the last few years from a centralized system with hierarchical reporting to a decentralized system. The centralized health system used to focus on morbidity and mortality reporting from individual health units to the district, state and national level. With the introduction of Health Management Information System (HIMS), there has been significant changes in the system from centralized to decentralize. HIMS emphasize on the use of information at the point of collection. More freedom and autonomy and responsibilities are given to each unit of health care. This requires more skill at the health care manager level for data and information handling and data management.

At the international level the call for action to improve the information infrastructure was emphasized since early as 1979 after inter-regional consultation on National Health Information Systems which was held in Costa Rica, on the initiative of the division of information support, world health organization (WHO).

In India the necessity of sound information system as a support to the various developmental activities of the health sector was identified very early by Bhore committee report soon after the independence. The committee reported that the national health policy of India inter-alia states that appropriate decision making and program planning in the health and related fields is not possible without establishing an effective health information system and that nationwide organizational set up should be established to procure essential health information which may provide support for the local management of the health care and effective decentralization of the activities.

Health and ICT

The health information management system is very critical both at micro (patient) level as well as macro (country) level. At patient level, in order to provide optimal care, healthcare institutions need timely information related to patient from various sources at the point-of-care, and need a comprehensive, complete and fully functional system to fulfill all these needs. At national level, the data related to health helps the government in framing various programs and policies for better health for the population. Application of Information Communication Technology (ICT) in healthcare is one way to achieve this. ICT is defined as a tool that facilitates communication, the processing and transmission of information and the sharing of knowledge by electronic means. ICT encompasses the full range of electronic digital and analogue ICT, from radio and television to telephones (fixed and mobile), computers, electronic-based media such as digital text and audio-video recording, and the Internet, but excludes the non-electronic technologies. Here it is to be noted that application of ICT does not lessen the importance of non-electronic technologies such as paper-based text for sharing information and

knowledge or communicating about health (WHO, 2004). The success of such system depends on various factors. Kuhn et al. (2001) allocate the success rate of a project as being 80 percent dependent on the development of the social and political interaction skills of the developer and 20 percent or less on the implementation of the hardware and software technology. In developing countries this means that issues like the national and organizational culture play a big role. Another issue with the use of ICT is the loss of individual benefits like extra income. The introduction of technology would also mean that illegal money making and fraud would become visible. These are some of the issues that play a role in developing countries which have a big impact on the successful introduction of information systems in hospitals in these countries.

The application of ICT into existing health systems has helped to improve the delivery of health care in a number of ways, Chetley et al. (2006). The benefits of application of ICT in health care include the use of telemedicine to improve diagnosis and enhance patient care, improvements in the continuing professional development of health workers and better sharing of research findings through e-health, and the use of health systems as an effort to extend the reach and coverage of health care to make an impact on specific conditions. ICT is the basis for the development and operation of information systems and enables the creation and application of knowledge. This consists of different levels of sophistication and complexity of information systems, within the health care system for: patient records, tracking of disease prevalence, monitoring drug supplies, maintaining ordering systems for supplies, and billing procedures therefore all benefit from the use of ICT. (Chetley et al 2006).

Telemedicine: Telemedicine is considered a powerful tool for improving delivery of health care services. The system of telemedicine has been successfully implemented in many countries as pilot project. Telemedicine can improve diagnosis and treatment of specific conditions dramatically but has proven to be very costly because it's an implementation requires high bandwidth and sophisticated remote equipment and has only proven practical in cases where money is not an issue or as an alternative to high-cost air transportation and lodging. However, telemedicine can be a cost-effective method that richer countries can employ to aid capacity building in the health care systems of poorer countries (Chetley et al 2006). In countries like India, use of telemedicine has helped people in rural areas in terms of saving money and time for travelling and long queuing lines. People involved in healthcare can now send patient information by email to specialists in the cities for their expert advice and suggestions.

E-health: E-health is the application of emerging information and communication technology, especially the Internet, to improve or enable health and healthcare. E-health includes both clinical and non-clinical sectors and includes equally individual and population health-oriented tools. E-health is the organization and delivery of health services and information using the Internet and related technologies. This can be used to improve health care locally, regionally, and worldwide by using information and communication technology (Chetley et al 2006).the system of E-health has helped isolated health workers, especially in remote areas, involved in primary health care with very little or no access to up to date information and opportunities to exchange experience with colleagues. They can update their knowledge and share their experiences with the use of technology.

Health Management Information Systems (HMIS)

Health systems include all activities with the main purpose to promote, restore or maintain health for all. Health system includes activities, but is not limited to, the preventive, curative and palliative health services provided by a health care system. A healthcare system is quite different from all other systems because of the complexities involved in the process and type of data used In health care, for example, the automation of patient records must deal with a variety of data requirements and specification problems due to things like the complexity of the medical vocabulary, the codification of biomedical

findings, and the classification of health conditions and interventions. In Gujarat health systems, in the form of, for example, district health management systems (GHMIS) help to gather data systematically which can be used to identify public health issues. It enabled all the public clinics to collect information on national health indicators. Health management is quite different from others as it requires the monitoring of the health status of the population, the provision of services as to the coverage and utility, drugs stocks and consumption patterns, equipment status and availability, Finances, personnel on a regular basis. Timely and accurate information from various sources is basic necessity of health management system. Accurate, relevant and up-to-date information is essential for health service managers in order to recognize weakness in health service provision and take immediate actions to improve service delivery.

A health information system (HIS) is a process whereby health data (input) are recorded, stored, retrieved and processed for decision-making (output). Decision making broadly includes managerial aspects such as the planning, organizing and control of health care facilities at the national, state and institutional levels and clinical aspects which can be subdivided into (i) providing optimal patient care, (ii) training of medical personnel to generate appropriate human resources, and (iii) facilitate research and development activities in various fields of medicine. The term health management information system is generally used to describe the following subsystems (table 1):

Table 1

Various sub- components/sub-systems of Health information System	
Epidemiological surveillance	Identification/notification of diseases and risk factors, Investigation, follow-up, control measures
Routine service reporting	Hospital/health center based indicators on performance of the various services
Specific program reporting	Various programs in operation in a particular country, topically include; Reproductive child health, AIDS, MALARIA, TB, LEPROSY, Integrated Child health and many other programs under different departments, names.
Administrative systems	Account and financial systems Drugs management (procurement, storage and delivery) Personnel management Asset management (equipment/buildings etc) Maintenance system
Vital registration	Birth, deaths, migration etc.,

The aim of a health information system is to improve the ability to collect, store and analyze accurate health data, service delivery efficiency, improve data accuracy, effectiveness of intervention, increase accountability and learn about trends. The objective of the system is to record information on health events and check the quality of services at different levels of health care. Few countries in the world today have effective and comprehensive systems in place to gather this data. These information systems used in health care, however, lack an unambiguous description of what an HMIS stands for. To give a few examples of the names being used to define these systems: the health management information systems (HMIS), hospital management information systems (HMIS), hospital information systems (HIS), hospital system(HS), health management system and these are only a few of what have been found. The confusion seems to lie in knowing the difference between a hospital and a health management system.

The goal of a Health Management Information System is to check quality by comparing perceptions of services delivered with the expected standards and to provide timely and accurate information leading to better health care planning and improved diagnosis and more patients getting access to health services for an entire country (Haux et al. (2004); Tan (2002)).

A health information system usually describes one of these several separate subsystems containing data (WHO, 2005): (a) disease surveillance and outbreak notification (b) Data generated through household surveys (c) registration of vital events and censuses (births, deaths and causes of death) (d) data collection based on patient and service records and reporting from community health workers, health workers and health facilities (e) programme-specific monitoring and evaluation (for example for TB, HIV/AIDS, and EPI) (f) administration and resource management (including budget, personnel, and supplies). HIMS consists of patient management as well as hospital management. The patient management information system will deal with all the information related to patients like (a) patient data (b) patient billing (c) patient treatments (d) patient prescriptions. The hospital management information system will be used to manage clinical information of the hospital concerning financing and logistics such as (a) accounting, (b) record keeping, (c) HR management (d) asset management and (e) stock management.

Evaluation of the Existing HMIS in India

Despite many supposed to be serious attempts through different collaborations, the state of HMIS in India is weak. The lack of awareness by health policy-makers and programme managers, of the strategic importance and practical usefulness of health information for planning and management results in a low demand for information; (WHO guidelines). India's developmental administration is structured in such a way that Key social areas like Health and primary education receive low priority. Health and Family welfare ministry is considered as the lowest in the hierarchy of preferential posting for the top bureaucrats (generalists). The tendency to quickly move to other postings is high. This means that posting in the Health and Family welfare for senior bureaucrats is only a transition. This coupled with the excessive concentration of powers in the secretariat system of governance has made the planning, monitoring as a central activity. The directorates staffed by subject experts are mere financial dependents. In India, the general administration is mostly concentrated at a district level. But, Health and Family Welfare administration has been centralized at state and central levels.

District Health and Family Welfare management: An average Indian district in size and population is bigger than 60 to 70 countries in the world. It presents various regions with different levels of development, geographical spread and population mix. The district management is very much ad-hoc and most of the District Medical officers lack management training and approach. They are rarely considered as key personal in the chain of program management and very few times applied with inputs in human resource development. The result is dependent district management for every initiative and week program implementation. Unless a greater amount of sophistication in planning and management is applied in program management with local initiatives, local decisions, the program outcomes will be very much inadequate as they are today.

India has been investing millions in to Health and Family Welfare sector through various programs and projects. But, the process of investment planning through several interventions is very centralized and does not account for the ground realities, relate to the complex social, economic and demographic indicators. It is based many times on the judgment of the few researchers; adhocly conducted surveys and politically motivated populist pressures. The planning and policy making process remain very weak in the absence of objective data and data culture. This results in problems of measurement. (Many times measurement is only formal in the face of the pressure from Controller and Auditor General or external

agencies etc.) Ultimately the program efficiencies remain the lowest. Many of the programs do not achieve even 50% efficiency/targets or outcomes. The fact that 50% of the money invested in that programs is gone waste is forgotten. More than the physical investments that count for a country like India, it is time— time lost in trails or extended pilot implementations and ineffective programs and policies – half a century is too big a waiting for the common man in India- a waiting of a life time.

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