

## HOSPITAL INFORMATION SYSTEM IN SHIMLA, HIMACHAL PRADESH

### Problem Statement

In India, District Hospitals cater to a large population, provide variety of services and absorb a good amount of financial and human resources. Despite these their performance measurement & monitoring remained a challenge in public health systems. Traditionally hospitals were working on paper-based records and were reporting aggregate numbers on limited parameters in the Health Management Information System (HMIS). The information reported from district hospitals was limited to the service delivery events required by National Health Programs. Information on curative care and administration required for facility management was remained in the hospital registers due to lack of proper recording & reporting system.

Electronic Medical Record based Hospital Information System has potential to strengthen the clinical, management and administrative systems in the hospital. However, these systems are difficult to implement and have their own challenges and limitations as faced by 'resource rich' western hospitals. In India District Hospitals functions with certain level of complexity and their information requirement changes very frequently. For an information system to be successful in that setting it is desired that it should have greater flexibility to adapt to the changing needs of the health system.

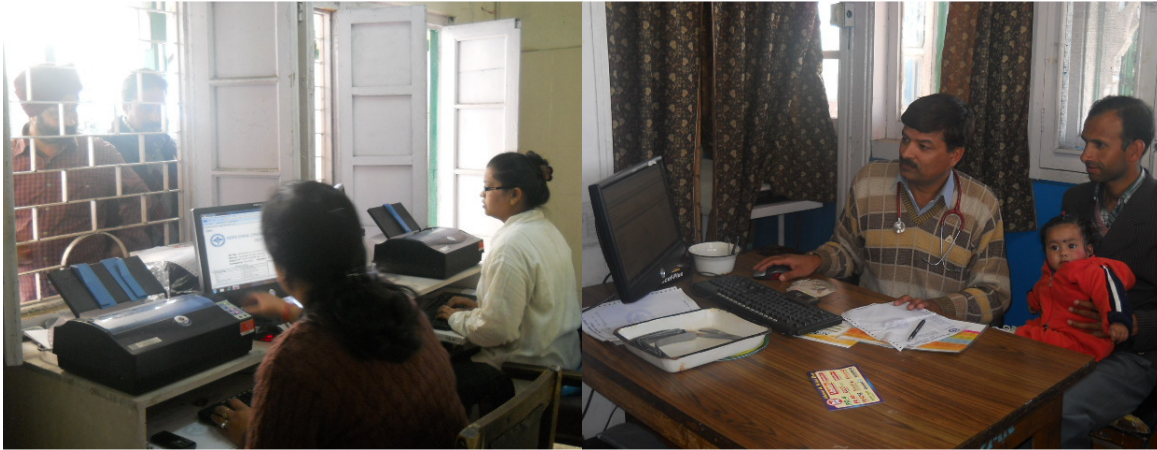
### Program Description

Himachal Pradesh State after realizing this challenge has implemented Open MRS based Hospital Information System in District Hospitals with help of NHSRC & HISP India. The objective of this initiative was to not only to document longitudinal patient records but also give aggregate data to hospital administrators as well as provide aggregate

statistics required for national program reporting. The project was initially developed and implemented in Deen Dayal Upadhaya Zonal Hospital, Shimla. The system was designed considering patient flow, work flow and information flow in the hospital. Specific Objectives of development and implementation of HIS are documented below:

- i. Clinical
  - a. Provide integrated longitudinal and comprehensive patient records of the patients.
  - b. Facilitate better service delivery through integrated operational workflows sharing a common data structure.
- ii. Administrative
  - a. Provide access and availability to operational Information to monitor performance of various units and to improve decision-making.
  - b. Facilitate effective utilization of resources (human, capital etc)
- iii. Managerial
  - a. Provide reports on hospital performance, quality indicators, revenue generation etc.
  - b. Reports required for district health system reporting.

For systems development participatory method of development was adopted and HIS development team documented requirements through a strong and ongoing participatory process with all stakeholders. The team then converted these requirements into mock-up screens and reviewed these requirements based on user feedback. After deliberations it was decided that 10 modules (registration, billing, laboratory, radiology, pharmacy, inventory, outpatient department (OPD), inpatient department (IPD), blood bank and finance) to be developed and implemented.



The Hospital Information System is integrated with facility based aggregated reporting system DHIS2 using the WHO SDMX. HD standard. Patient level data from DHIS Hospital is aggregated and exported into the DHIS2, enabling the generation of management indicators (such as bed occupancy rates and average length of stay), and presented as tables, graphs & charts, which also allows for inter-hospital comparison to support management analysis.

Comprehensive training program were conducted for all level of users in the hospital. In addition long term hand-holding support was also given to the staff to effectively use hospital information system and to solve issues as and when they arise. The initial results were very encouraging and the hospital staff promptly started generating various reports from the system. Administrators were also able to get analyzed reports for their reviews, using Hospital Information System.

#### **Program Impact**

The process of building and implementing the integrated hospital information system started at DDU hospital in Shimla, has already been spread to five more hospital – RH Solan, DH Kulu, ZH Mandi, DH Hamirpur and DH Dharamshala, and RHP Medical College and Hospital, TandaKangra, and by the end of the year should cover more than 12 such facilities. The system has streamlined patient record keeping with a facility to provide continuity of care. Aggregate reports are being generated through the patient-based encounters, which helps in improving data integrity and quality. The system has also rationalized complex hospital processes which further improved data collection and reporting. During implementation local capacity to manage HIS has also been developed.

#### **Scalability**

The system is very flexible and is based on open-source philosophy which is low cost. The system can be replicated in other public sector hospitals. This model is already been adapted and being implemented by Punjab.

#### **For further details contact**

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