Study on Hospital Management Information System

By

Mehak Jamwal

Dissertation submitted for the partial fulfillment of the

MBA Hospital and Health Management

Academic year, 2015-2017

The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: **www.iihmr.edu.in**

Study on Hospital Management Information System

By

Mehak Jamwal

Dissertation submitted for the partial fulfillment of the

MBA Hospital and Health Management

Academic year, 2015-2017

Paras Hospital, Gurgaon

The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Sanganer, Airport
Jaipur 302029, Rajasthan
Ph: 0141 3924700, Fax: 3924738
Website: www.iihmr.edu.in

INSTITUTE OF HEALTH
MANAGEMENT RESEARCH
(WHO Collaborating Centre for District Health System Based on Primary Health Care)

IIHMR UNIVERSITY

TO WHOMSOEVER MAY CONCERN

This is to certify that **Dr. Mehak Jamwal** student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at **Paras Hospital, gurgaon** from 6th February 2017 to 6th May 2017.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.
The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.

Col (Dr.) Ashok Kaushik
Dean, Academics and Student Affairs
The IIHMR University, Jaipur

Nutan jain
Professor
The IIHMR University, Jaipur

1, Prabhu Dayal Marg, Near Sanganer Airport, Jaipur- 302029, Rajasthan, India.
Ph.: 0141- 3924700, 2791431- 32, Fax: 0141 3924738, E-mail: iihmr@iihmr.edu.in, Web.: www.iihmr.edu.in

PARAS HOSPITALS
Partners In Health

PHPL/H.R. – Comm./2017/225

May 09, 2017

WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Mehak Jamwal** has successfully completed her training in ***IT Department*** in our organization from **06th February 2017 to 06th May 2017.**

During her training period she was found to be sincere, dedicated and efficient in her work.

We wish her all the best for a bright future.

For **Paras Hospitals, Gurgaon**

Ranshul Aggarwal
Manager – HR

Ranshul Aggarwal
Manager – Human Resource
PARAS HOSPITALS
C-1 Sushant Lok, Phase-1
Sector-43, Gurgaon-122002

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "**study on upgradation of hospital management information system**" and submitted by **Mehak jamwal** Enrollment No. **IIHMR-U/04/2015-17/0304** under the supervision of **Nutan jain** for award of MBA Management in Health & Hospital of the University carried out during the period from **6st February' 2017 to 6th May'2017** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.

Mehakjamwal

Signature

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that all ethical issues have been considered while collecting data for my dissertation titled study on the upgradation of hospital management information system.

Signature of student

Mehak Jamwal
MBA (HM-20)
IIHMR, JAIPUR.

ACKNOWLEDGMENT

Nothing Really Can Be Accomplished Alone. It's The Direction, Guidance, Involvement And Support Of More Than Few That Results Into Realization

My Institute –Institute Of Health And Hospital Management Research (IHMR), Jaipur, All The Faculties At IIHMR And Its Education Deserves The Foremost Appreciation For Providing Me The Opportunities To Understand My Individual Capabilities. I Acknowledge The Contribution Of Dr. Ashok Kaushik Professor And Dean Academic And Student Affairs At IIHMR University, Jaipur In The Completion Of Project

I Consider Myself Fortunate For Having Been Provided An Opportunity To Undergo Summer Training At Paras Hospital, Gurgaon And Wish To Express My Indebted Gratitude To Dr. Kapil Garg, Director Of Paras Hospital.

I Also Wish To Extend A Special Thanks To My Mentor Mr. Shuvankar Pramanick

I Want To Say Thanks To Mr. Deepak Verma , Manger –It Corporate Paras Hospitals Who Guided Me And His Constant Encouragement During The Course Of The Project.

Also, I Want To I Extend My Sincere Thanks To Mr. Parveen, Deputy -IT For The Cooperation And Guidance.

I Am Also Grateful To The Employees IT, Department Heads And Staff For Cooperating With Me Inspite Of Their Hectic Schedule And To Accomplish My Task

Dr. Mehak Jamwal

A STUDY ON HOSPITAL MANGEMENT INFORMATION SYSTEM

Abstract

Introduction

Hospital Information Management System (HIMS) implies putting every information or electronically or manually that are connected to each other and available from every single approved hub. HMIS incorporates clinical, money related, managerial data, utilizing the mix of PC, correspondence web and imaging innovation in order to wellbeing experts' cooperating in the conveyance of care to patients, and give exact and auspicious data to open and administration. The HMIS may control official documentations, budgetary situational reports, individual information utilities data and stock sums additionally keeps in secure place patient's data, patients restorative history, medicines, operational and laboratory center test outcomes.

Objectives

- To understand the managerial perspectives for the need for upgradation of the existing HMIS in Paras hospital
- To study the inputs and processes in the existing hospital information system; and
- To analyses strengths, weaknesses, opportunities, and threats in the existing HMI system

Methodology:

The study was conducted in steps. The steps were (i) discussion with Deputy Manager and IT unit head; (ii) sought permission from IT unit head, Paras hospital; (iii) review the existing HMIS by visiting all the units/ departments in Paras hospital by taking notes; (iv) conducted SWOT analysis; and (v) identified inputs and processes required to upgraded HMIS

Findings

The results revealed that management of Paras hospital decided to upgrade the HMIS for (a) better efficiency; (b) easy for staff of the hospital; (c) better patient satisfaction; (d) better storage and retrieval of data; and (e) better utilization of hospital resources. The inputs and processes identified were related to OPD enrolment, IPD registration, online billing, discharge synopsis store administration, laboratory facility administration, drug store administration Insurance and TPA management, and medical record department. The strengths of the HMIS at Paras Hospital were: current system has all the modules, well integrated with finance module, and the current system is already on the web. The weaknesses included: lack of centralised database, and internal dashboards, and user interface was not user friendly.

Conclusion

It was concluded that the need for upgradation of the existing HMIS in Paras hospital was realized by the management for making the hospital system more efficient and effective. The inputs and processes in the existing hospital information system are to add personal details of the patients like mobile no., name, address which is necessary. The strengths included are it has well integrated finance module and the existing system is on the web, weaknesses were no centralized database and it is not user friendly , opportunities and threats in the existing HMI system are module applications and database. And threats are dependence on windows and network connectivity is limited.

A STUDY ON HOSPITAL INFORMATION MANAGEMENT SYSTEM IN PARAS HOSPITAL

INRODUCTION:

Healthcare is very important part of our society and it is imperative for healthcare providers to do their jobs in an effective manner and efficient manner, HIS then help them manage all their medical and administrative information.

When we joined the hospital phase-II HIS implementation going on in various department of the hospital like OT department, IP Billing, OPD department, laboratory department, CSSD. I was assigned the work of study on hospital management information system in the Paras hospital. The hospital had tie up with the vendors for the implementation of HMIS of the hospital with the external vendor agency. Who designed the basic software's for the department

.

Once all the changes have been made training must be given to the various staff of the hospital to implement the hospital management information system of the hospital. Also, efficient and effective training to all the staff of the Paras hospital for efficient use of software was important.

Software made all the work easier for the staff and other staff of the hospital. All the changes, made in the software were enlisted and enrolled in form of tracker to keep records of the software.

The periodic review was done to make sure the proper functioning of the hospital management software

User acceptance towards the system

The role of hospital management in formation system lead to many changes and it creates more opportunities for those who adopt and utilize it.

Even though the hospital management information system seems to prove many benefits to the hospital.

- The increase of role in its adoption is influenced significantly by its users.
- Therefore user acceptance towards the systems is a very important aspect.
- Since its importance is enlisted also its advantages is present in the module.
- Many may be able to manage it appropriately and get benefits out of it

However, user acceptance is important. Some rather prefer to stick to the manual systems because of several factors Such as strong resistance to adapt, effect on job practices, as well as training skills of the staff of the hospital

Introduction

Hospital Information Management System (HIMS) implies putting every one of all frameworks and healing hospitals – wide assets both electronic and manual that arrangement with taking care of and capacity of data/information of doctor's facilities in personal computers (PCs) that are connected to each other and available from every single approved hub. HIMS is extensive doctor's facility wide programming which covers all parts of administration and everyday operations of the hospital.

HMIS incorporates clinical, money related, managerial data, utilizing the mix of PC, correspondence web and imaging innovation in order to wellbeing experts' cooperating" in the conveyance of care to patients, and give exact and auspicious data to open and administration.
Doctor's facility data framework gives a typical wellspring of data about a patient's wellbeing history. The frameworks need to keep information in secure place and control who can achieve the information in specific conditions . These frameworks improve the capacity of social insurance experts to organize mind by giving patients wellbeing data and visit history at the place and time that is required Patient's lab test data additionally visual outcomes, for example, X-beam may reachable from expert's. HIS give inner and outside correspondences among medicinal services suppliers.

The HMIS may control official documentations, budgetary situational reports, individual information utilities data and stock sums additionally keeps in secure place patients data, patients restorative history, medicines, operational and laboratory center test outcomes.

Rationale:
If all the processes in the hospital can be done through the hospital information system, it will reduce chances of errors and increase efficiency. It can increase patient satisfaction, increase skill-ability of staff and employees of the hospital. The effective HMIS may bring change in administration as the departments are still holding on to old habits of manually entering onto the records, awareness of different functionality and reduced operational errors.

Review of literature:
Nuright L.P., Simpson Nell (1994) led a review on advantages of clinic data frameworks in cutting edge healing facility staff from six doctor's facilities. The motivation behind these illustrative correlational reviews was to recognize benefits acknowledged from modernized doctor's facility data frameworks (HMIS) and the advantages acknowledged as seen by forefront framework clients. A sum of 695 respondents from six clinics portrayed advantages identified with cost investment funds. Medicines of attendants with respect to the degree to which advantages were acknowledged were not fundamentally not the same as those of non-medical

attendant staff; however, nurture evaluated potential significantly higher in significance then did non-medical caretakers. Discernments were not reliably

Connected to statistic factors; the variable most impacting discernments was degree of computerization in office. Discoveries seem valuable to specialists concentrate HIS advantages and to framework creators and sellers trying to make HIS easier to understand, functional, and attractive.

E-doctor's facility administration frameworks give the advantages of streamlined operations, upgraded organization and control, unrivaled patient care, strict cost control and enhanced productivity. Internationally acknowledged medicinal services frameworks need to consent to social insurance guarantees benefit and responsibility act (HIPAA) principles of HIS and that has turned into the standard of human services industry. The review is generally concurred gauges and conventions like wellbeing level framework benchmarks for manual message, HIS parts, and so forth.

To be in contact at an indisputable thought of the ale pictures on E-healing facility administration and clinic data frameworks existing study information and particular effective contextual investigations of HIS are considered in the review. With such a large number of redid renditions of E-doctor's facility administration arrangements (E-HMS) and healing facility data frameworks accessible in the market a nonexclusive module astute condition of E-doctor's facility administration framework is diagrammed.

The conception of this study was based on the concerns about the poor-quality data and inadequate integration of the HMIS despite a number of changes it has undergone since inception and the need to bridge the gaps in the on-going changes in health sector. In an attempt to strengthen the health services to meet national and international commitments, the government of Tanzania has developed the Primary Health Service Development Program (PHSDP) whose main goal is to accelerate provision of quality primary health care services to all by 2017. This program is implemented by increasing intakes of trainees for health care, reviewing and standardizing curricula for all medical and paramedical cadres to competence-bas.it explores the gaps and factors for change in HMIS in Tanzania and presents a detailed account on how they could be best bridged in the ongoing changes in country's health sector It attempts to link the required changes in the HMIS and the evidence-based John Kotter's eight-step process for implementing successful changes in any organizations

In an extensive study of the hospital information system in the medical records department of a tertiary teaching hospital published in journal of the academy of hospital administration conducted by Praveen Kumar A and Gomes L.A reveals that the department is providing information to the health authorities regularly. The overall opinion of the managers, doctors and

patients about the existing hospital management information system in the hospital is satisfactory (80%) and 20% feel that the system is poor.

The purpose of the hospital management information system is to raise managing from the level of piecemeal spotty information , intuitive guess work and isolated problem solving to the level of systems insight, systems information system and system problem solving. It is thus a powerful method for aiding administrators in solving and making decisions.

However it was found that the majority of the managers 70% , disagree with the statement that the HMIS of the hospital helps in discharging effectively their managerial responsibilities as well as the in enhancing the inter and intra hospital communication (80%) . half of the managerial heads (50%) agree that the statistical information from the medical records department helps in decision making . with an increase in the number of third party payers utilization requirements, admitting and utilization management are in frequent communication

The majority of the mangers 80% agree that the existing hospital information system does not help in the quality assurance programme as well as it enhances the functions of the supportive services. Half of the managerial heads agree that the hospital management information system does not help as a tool in the various utilization processes.

The various studies conducted earlier regarding information system reveals the benefits for doctors, patients, nurses and includes , qualitatively better data, more data available to the patients .direct consultation of colleagues and experts , used of decision based systems, reduced work load, the gain of time, the availability of administrative support,

Majority of the doctors do not believe that existing hospital information system can help to reduce the cost of patient care (65%) or shorten the stay of patient in the hospital The majority of the doctors 85% feel that the nonexistence of ward" computers is a hindrance in providing the expected patient care. They also feel that the existing hospital information system helps in infection control and in defining the community needs . Majority of them agree that the hospital management hospital information system helps in education and research.

Research Questions:

a. What are the needs that lead to upgradation of existing hospital information system?
b. What are the inputs and processes involved in the hospital information system?

Objectives:

- To understand the managerial perspectives for the need for upgradation of the existing HMIS in Paras hospital
- To study the inputs and processes in the existing hospital information system; and
- To analyse strengths, weaknesses, opportunities and threats in the existing HMI system

Methodology:

The study was conducted in following steps as mentioned below:
Step 1: Discussion with Deputy Manager and IT unit head
Step 2: Sought permission from IT unit head, Paras hospital
Step 3: Review the existing HMIS by visiting all the units/ departments in Paras hospital by taking notes
Step 4: conducted SWOT analysis
Step 5: Identified inputs and processes required to upgraded HMIS

Findings

Need for Up gradation of HMIS at Paras Hospital

Management of Paras hospital decided to upgrade the HMIS for the following reasons:

a) Better efficiency
b) Easy for staff of the hospital
c) Better patient satisfaction
d) Better storage and retrieval of data
e) Better utilization of hospital resources

The advantages of upgradation of HMIS

Management of Paras hospital has visualized the following advantages to upgrade the HMIS:

- Increases efficiency leading to better patient satisfaction.
- Reduction in average length of stay of patients.
- Improved utilization of hospital resources.
- Improved patient turn over
- Data entry, storage, retrieval and analysis of data at one point only.
- Instant access to patient information when and where required
- Flow of better clinical and other information for better patient care management.
- Provides a totally secure database and facilitate patient area.
- Force orderliness and standardization of the patient records and procedures in the clinic and increasing accuracy and completeness of medical record of the patient.
- A good managerial tool to provide total, cost – effective access to complete and more
- Accurate patient care data to offer improved performance and enhanced" functions.
- As systematic way to manage documents.
- To analyse information quickly for management decision making.
- Reduction in operational costs through effective resource allocation senior clinicians , nurses, technicians ,and other assists.

- Effective operational control and streamlining them.
- Easy retrieval of financial information if any.

Review the inputs and processes in the existing HMIS at Paras hospital

1. OPD enrolment when a patient goes to the front counter. Another enrolment number is consequently apportioned to HMIS. Patients' own points of interest like name, age, sex, address and so forth and the administrations covered are put into the product OPD charging/accumulation. Of all the OPD patients with finish points of interest of the patient data, administrations gave like counsel , lab , X-beam , ultrasound , medications , methods and so forth.

2. IPD registration when a patient comes to the reception desk for admission, a separate new registration number is automatically allotted to the patient. His/ her personal details along with the details of the admission, room, consultant, surgeon, diet etc. and the advance payment are fed into the software. The software records all this information and print the related documents.

3. On line billing of IPD patients with details of patient information, services provided on daily basis like room rent ,operations, delivery, oxygen and other gases consultation, nursing charges, laboratory tests, X-ray, ultrasound, medicines, procedures, etc.

4. Discharge synopsis - After the release of the patient release synopsis of the patient can be naturally created.

5. Store administration -Keep up issue slips. Look after stock ,reorder levels.

6. Laboratory facility administration - As the test is reserved at gathering solicitation is naturally send to research center. Lab can encourage the outcome later and prints reports.

7. Drug store administration - Consequently it can be connected to the primary billing. As patient collects medicines from the pharmacy shop their charges will automatically transfer to patient billing

8. Insurance and TPA management – Pre admission forms for different TPA can be set .after admission limit of panels approval will be taken care of .

9. Medical Record Department management -Keeps history of all the patient. Data analysis can be further done on any field. Keeps track of the ICD numbers/ bed days per consultant and other MRD records.

10. Payroll and HRD management - Complete salary can be computed through this module. All necessary formats are generated through this module .

11. Consultant management- Tracking of consultant share for OPD/Indoor procedures options for defining consultant

12. Shared based on procedures / department

13. Classifying visit of patient as new/ old for that consultant

The following gaps in the inputs and processes were identified:

- There was no separate entry for booking or those patients who sought appointments and those who come without any pervious information.

- OPD and IPD billing- incomplete data entry of information on personal information including mobile number, cover letter for the insurance system to be typed/ incorporated in the system, IPD billing co-payment is calculated automatically; emergency and surgeries charges are also calculated separately

- In-Patient management- incomplete data entry of information on personal information.

- Operation Theatre management- Lack of Scheduling / slots of doctors; in OT module which scrubs nurses washes for which case isn't mapped

SWOT Analysis of Existing HMIS

STRENGTHS	**WEAKNESS**
The current system has all the Modules Well integrated with finance module The current system is already on the web	No centralised database Lack of internal dashboards User interface isn't user friendly

OPPORTUNITY	**THREATS**
Centralised dashboard Use of portable devices Module applications	Dependence on windows licences Technology obsolelance Network connectivity

Conclusion:

- The need for upgradation of the existing HMIS in Paras hospital was realized by the management for making the hospital system more efficient and effective.

- The inputs and processes in the existing hospital information system are to add personal details of the patients like mobile no., name , address which is necessary.

- The strengths included are it has well integrated finance module and the existing system is on the web , weaknesses were no centralized database and it is not user friendly , opportunities and threats in the existing HMI system are module applications and database. And threats are dependence on windows and network connectivity is required.

References:

1. Gardner, R.M., Pryor, T.A., Warner, H.R. The HELP hospital information system: update**.** *Int. J. Med. Inf.*1999;54: 169–182
2. Donald k.w. management of information systems- a handbook for modern mangers , the free press, ollier; mac million publishers, London:1982;266,
3. Damen w kilsdonk A , vander WA. Information networks, hospital management, sterling publications ltd.,Netherlands
4. Goel S.Lhealth care systems and management systems in India., vol11, deep and deep publications pvt ltd , new Delhi. 2001;2223:232
5. Hospital information system
6. Dutt s, Ghei. Patient information system in india.1986 xxii
7. Praveen kumar A, gomes L.A., a study of the hospital management information system in the medical records department of a tertiary teaching hospital. *Journal of the academy of the hospital administration, vol 8, no.1(1994)*
8. Samal J, Dehury RK. Perspectives and Challenges of H MIS Officials in the Implementation of Health Management Information System (HMIS) with Reference to Maternal Health Services in Assam. J Clin DIAGNOSTIC Res [Internet]. 2016 Jun [cited 2017 May 20];10(6):LC07-9. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27504314
9. Manimaran S, Lakshmi KB. Development of model for assessing the acceptance level of users in rural healthcare system of Tamilnadu, India. Technol Health Care [Internet]. 2013 [cited 2017 May 20];21(5):479–92. Available from: http://www.ncbi.nlm.nih.gov/pubmed/24177311
10. Nyamtema AS. Bridging the gaps in the Health Management Information System in the context of a changing health sector. BMC Med Inform Decis Mak [Internet]. 2010 Jun 25 [cited 2017 May 20];10(1):36. Available from: http://bmcmedinformdecismak.biomedcentral.com/articles/10.1186/1472-6947-10-36
11. Bhattacharyya S, Berhanu D, Taddesse N, Srivastava A, Wickremasinghe D, Schellenberg J, et al. District decision-making for health in low-income settings: a case study of the potential of public and private sector data in India and Ethiopia. Health Policy Plan [Internet]. 2016 Sep [cited 2017 May 20];31(suppl 2): ii25-ii34. Available from: https://academic.oup.com/heapol/article-lookup/doi/10.1093/heapol/czw017
12. Bhattacharyya S, Berhanu D, Taddesse N, Srivastava A, Wickremasinghe D, Schellenberg J, et al. District decision-making for health in low-income settings: a case study of the potential of public and private sector data in India and Ethiopia. Health Policy Plan [Internet]. 2016 Sep [cited 2017 May 20];31(suppl 2): ii25-ii34. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27591203
13. Upadhaya N, Jordans MJD, Abdulmalik J, Ahuja S, Alem A, Hanlon C, et al. Information systems for mental health in six low and middle income countries: cross country situation analysis. Int J Ment Health Syst [Internet]. 2016 Dec 26 [cited 2017 May 20];10(1):60. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27708697