IMPACT AND IMPLEMENTATION OF HOSPITAL INFORMATION SYSTEM IN THE SERVICE QUALITY OF MISSIONARY HOSPITALS IN ERNAKULAM DISTRICT

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ABSTRACT

The Present research study on a hospital information system (HIS) is an element of health informatics that focuses mainly on the administrational needs of hospitals. In many implementations, a HIS is a comprehensive, integrated information system designed to manage all the aspects of a hospital's operation, such as medical, administrative, financial, and legal issues and the corresponding processing of services. Hospital information system is also known as hospital management software (HMS) or hospital management system. In this research study on hospital information system in Ernakulam district taken on six mission hospital with a sample size of 260 respondents on an empirical framework. The population size of the six hospitals was assessed through interviews with human resources management specialists in six hospitals The Research should include the development and investigation on HIS and implementation on HIS service quality. Majority Lisi hospital service quality is high growth with response of head medical unit in HIS. The components of highly satisfied with financial software service is excellent in HIS in Ernakulam district. HIS have become one of the most challenging and promising fields of research, education and practice for medical informatics, with significant benefits to medicine and health care in general.

Keywords: Hospital information system, Implementations, Professions, Components, service quality, Hospital Management Software

INTRODUCTION

A hospital information system (HIS) is an element of health informatics that focuses mainly on the administrational needs of hospitals. In many implementations, a HIS is a comprehensive, integrated information system designed to manage all the aspects of a hospital's operation, such as medical, administrative, financial, and legal issues and the corresponding processing of services. Hospital information system is also known as hospital management software (HMS) or hospital management system.Hospital information systems

provide a common source of information about a patient's health history, and doctors schedule timing. The system has to keep data in a secure place and controls who can reach the data in certain circumstances. These systems enhance the ability of health care professionals to coordinate care by providing a patient's health information and visit history at the place and time that it is needed.

LITERATURE REVIEW

Nils-Hendrik Benning, Petra Knaup (2020), Hospital Information Systems, 159-173, doi: 10.3233/SHTI200675. Hospital information systems (HIS) have to be considered as socio-technical systems, which consist of technical components as well as of the human aspect like hospital staff and patients. HIS strive for the optimization of information logistics, to support tasks like patient care and administration of a hospital. To systematically manage such complex systems, HIS can be analyzed on three layers: First, tasks and entity types should be considered. Entity types represent information which is used and updated by tasks like 'Patient Admission' or 'Decision Making'. Second, application components of a HIS should be analyzed, they can be either computer-based or paper-based; both of them support tasks from the first layer. Therefore, they store and exchange information. The third layer analyzes physical data processing components of a HIS, like servers, workstations or networks. The three-layered view can be used for the systematic information management of HIS on three perspectives: strategic information management plans the development of the whole HIS for the next 5 years and longer. Measures from strategic information management are implemented as projects, coordinated by the tactical information management. The operational information management ensures a continuous and reliable operation of the HIS.

Reinhold Haux, Health information systems - past, present, future, In 1984, Peter Reichertz gave a lecture on the past, present and future of hospital information systems. In the meantime, there has been a tremendous progress in medicine as well as in informatics. One important benefit of this progress is that our life expectancy is nowadays significantly higher than it would have been even some few decades ago. This progress, leading to aging societies, is of influence to the organization of health care and to the future development of its information systems. Twenty years later, referring to Peter Reichertz lecture, but now considering health information systems (HIS), two questions are discussed: which were lines of development in health information systems from the past until today? What are consequences for health information systems in the future? The following lines of development for HIS were considered as important: (1) the shift from paper-based to

computer-based processing and storage, as well as the increase of data in health care settings; (2) the shift from institution-centered departmental and, later, hospital information systems towards regional and global HIS; (3) the inclusion of patients and health consumers as HIS users, besides health care professionals and administrators; (4) the use of HIS data not only for patient care and administrative purposes, but also for health care planning as well as clinical and epidemiological research; (5) the shift from focusing mainly on technical HIS problems to those of change management as well as of strategic information management; (6) the shift from mainly alpha-numeric data in HIS to images and now also to data on the molecular level; (7) the steady increase of new technologies to be included, now starting to include ubiquitous computing environments and sensor-based technologies for health monitoring. As consequences for HIS in the future, first the need for institutional and (inter-) national HIS-strategies is seen, second the need to explore new trans institutional HIS architectural styles, third the need for education in health informatics and/or biomedical informatics, including appropriate knowledge and skills on HIS. As these new HIS are urgently needed for reorganizing health care in an aging society, as last consequence the need for research around HIS is seen. Research should include the development and investigation of appropriate trans institutional information system architectures, of adequate methods for strategic information management, of methods for modelling and evaluating HIS, the development and investigation of comprehensive electronic patient records, providing appropriate access for health care professionals as well as for patients, in the broad sense as described here, e.g. including home care and health monitoring facilities. Comparing the world in 1984 and in 2004, we have to recognize that we imperceptibly, stepwise arrived at a new world. HIS have become one of the most challenging and promising fields of research, education and practice for medical informatics, with significant benefits to medicine and health care in general.

Yousef Mehdipour&Hamideh Zerehkafi (2013), Hospital Information System (HIS):At a GlanceAugust 2013, Asian Journal of Computer Science and Information Technology 01(02):2321-5658. Information is the foundation for policy making, planning, programming, and accountability. Health informatics is the intersection of information science, computer science, and health care. It deals with the resources, devices, and methods required to optimize the acquisition, storage, retrieval, and use of information in health and biomedicine. Boddy et. al (2005) describes an information system (IS) as"a set of people, procedures and resources that collects data which it transforms an`d disseminates". Most professionally run hospitals and clinics now rely on Hospital Information Systems (HIS) that

help them manage all their medical and administrative information. A health information system (HIS) can be defined as "comprising all computer-based components which are used to enter, store, process, communicate, and present health related or patient related information, and which are used by health care professionals or the patient themselves in the context of inpatient or outpatient patient care" (UMIT, 2005). It is also known as Healthcare Information System. In health organization such as hospitals, implementation of HIS inevitable due to many mediating and dominating factors such as organization, people and technology. Data for this paper were collected through bibliographic and internet research. Four key areas will be addressed in this paper: 1. An analysis of HIS and its components. 2. Benefits of HIS 3. Phases Of Implementation Of HIS 4. Suggestions for selecting of HIS Study showed that End-user training is crucial for the success of an HIS. Without the users being trained properly in their assignments the chance of failure increases substantially. Training is not only important as a mean for teaching the individuals how to perform certain tasks, it's also one of the most pervasive methods of communicating organization goals to the personnel.

Mohamed Khalifa MD, Osama Alswailem, Hospital Information Systems (HIS) Acceptance and Satisfaction: A Case Study of a Tertiary Care Hospital, Procedia Computer Science, Volume 63, 2015, Pages 198-20, Elsevier. The main objective of this study is to evaluate hospital information systems (HIS) acceptance and satisfaction, through exploring the influential factors that might increase or decrease acceptance and satisfaction levels among different healthcare professionals, in order to provide solutions for successful HIS implementation. METHODS: The study used objective quantitative survey methods to collect data directly from different types of HIS users. The questionnaire included five sections; a demographic user information section, a general HIS assessment section, a section about accessibility and availability of computers, a section about HIS and patient care and a section about satisfaction with HIS. RESULTS: The availability of computers in the hospital was one of the most influential factors, with a special emphasis on the availability of laptop computers and computers on wheels to facilitate direct and immediate data entry and information retrieval processes when healthcare professionals are at the point of care. Users believed that HIS might frequently slow down the process of care delivery and increase the time spent by patients inside the hospital especially during slow performance and responsiveness phases. RECOMMENDATIONS: Three main areasshowed improvement potential; system performance, organizational support and users'feedback. Improving the performance of the HIS is very crucial for its success, in addition to increasing the

availability of computersat the point of care. User friendliness and new innovative methods for data entry, such as automated voice recognition,can improve the workload and enhance information quality. Organizational support is very crucial, through providing training, dedicated and protected time during working hours for users to learn and practice on HIS. Better and more reliable channels of communication and feedback are needed to consider users' complaints, suggestions and contribution.

PHASES OF IMPLEMENTATION OF A HIS

The phases of a software implementation begin with the stage in which it is decided to implement an HIS system, and not another type of tool. This is followed by the process of deciding which HIS will be implemented and which consultancy will be assigned to implement the project. Once selected, the implementation phase begins, in which the system will be parameterized; For this phase, the consulting firm that leads the project proposes a work methodology, experience in implementations and training.

COMPONENTS OF HOSPITAL INFORMATION SYSTEMS

A hospital's HIS is a conglomeration of several specialized sub-systems that manage different functions of a healthcare organization's functioning. The main components that a HIS can be divided into are the following:

Core Management:

The core system of the hospital or the hospital management system is an independent or cloud-based medical management framework. This system captures and integrates the day-to-day activities of each department of the hospital system.

Financial Software:

Chief financial officers and those responsible for the revenue cycle management carry out their management and strategic planning through this software component. SaaS accounting and financial management plug-ins often interlink to form the overall financial management system. With proper monitoring of the healthcare organization's revenue cycle, the bottom line can be enhanced and resources can be freed up to spend on value-enhancing operations.

Personnel/ERP:

Patient and employee management tools are together taken care of the personnel management capabilities of HIS. These systems facilitate transparent communication,

resource allocation, and scheduling between patients and medical staff across multiple facilities and departments. The major suppliers of ERP systems, in general, are strategically considering the potential of healthcare to be a relatively new and fast-growing market.

Medical Documentation:

While EHR and EMR systems track patient appointments, care notes, and financial information, a dedicated documentation framework must be in place in the overall HIS. This helps ensure that all high-priority documents, from patient records, personnel details, inventory, hospital finances, etc. are maintained across secure encrypted portals with proper access control.

Asset Tracking:

Asset tracking or medical inventory management systems enable hospital staff to monitor inventory across the inventory lifecycle right from purchase to compensation. When an item in the inventory, be it pharmaceuticals or surgical tools, is on the brink of expiry, it can be replenished or stocked back up. It is a means to ensure that the best practices are followed in terms of inventory maintenance.

Medical Transportation Management:

It is required by US federal law that the least costly type of transportation takes patients to their relevant medical appointments. This is true for both emergency and non-emergency medical transportation and the tracking, maintenance, and allocation of these vehicles is an essential functional component of HIS.

OBJECTIVES OF THE STUDY

- To study the implementation on Hospital information system.
- To identify the degree of service quality in the missionary hospital.
- To identify the various components of Hospital information system.

RESEARCH METHODOLOGY

An empirical study of missionary hospital in Ernakulam district Out of these sample size of 6 mission hospital selected through Delphi method.The data collection was done through a questionnaire. A face to face set of data was collected manually for most responses. Data collection was done by questions related to the implementation of HIS, degree of service quality and components of HIS. The data were collected from the

- clinical leadership,
- medical staff supervisors,
- management supervisors and
- medical doctors.

Most people used the information technology tools and quality of health information) related to different departments in public teaching hospitals in Ernakulam. The respondents belong to all hospital departments and include all types of medical doctors (MD) (specialist and resident). The population size of the six hospitals was assessed through interviews with human resources management specialists in six hospitals. The size of the population was approximately 274 between physicians, medical department heads, non-medical department head, and medical and non-medical supervisors. Total sample size is 260 questionnaires that have been considered, as 14 Out of 274 distributed forms were excluded. This sample size of the collected questionnaires was sufficient for research hypotheses testing.

DATA ANALYSIS AND INTERPRETATION

Table:1 Hospital names and hospital participation percent

Name of the Hospital	No of the Respondents	Percentage
AP Varkey mission hospital	42	16
Lisi hospital	98	38
Lourdes hospital	57	22
Little flower hospital	26	10
Sahrudaya hospital	20	8
St Thomas hospital	17	6
Total	**260**	**100**

Majority (38%) of the respondents are in the PS mission hospital Ernakulam.

Chart No:1 Name of the Hospital

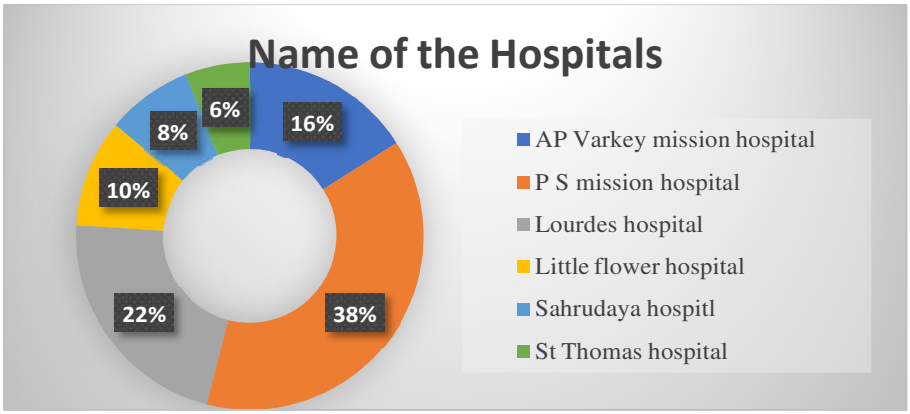


Table:2 Name of the Professions in HIS

Professions	**No of respondents**	**Percentage**
Manager	32	12
Senior officer	51	20
Supervisor	44	17
Head of medical unit	94	36
Resident doctor	23	9
Specialist doctor	16	6
Total	**260**	**100**

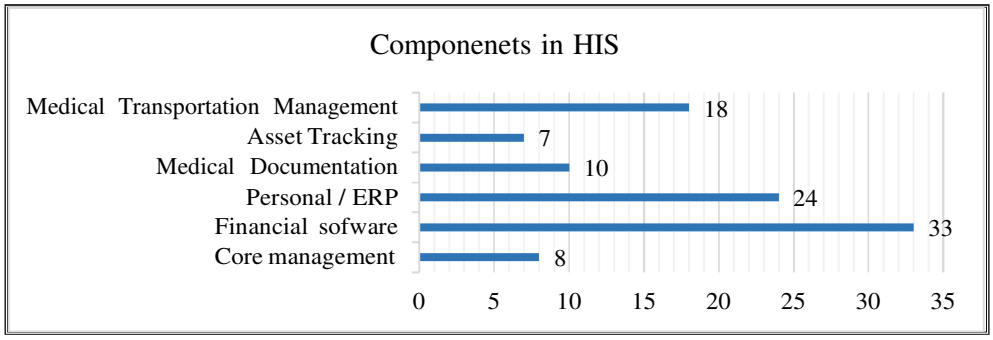
Majority (36%) of the respondents are in the Head of medical unit in HIS.

Table:3 Components of HIS

Components	**No of respondents**	**Percentage**
Core management	22	8
Financial software	84	33
Personal / ERP	62	24
Medical Documentation	25	10
Asset Tracking	19	7
Medical Transportation Management	48	18
Total	260	100

Majority (33%) of the respondents are in the Financial software components in HIS

Chart No:2 Components in HIS



CONCLUSION

In this research study on hospital information system in Ernakulam district taken on six mission hospital with a sample size of 260 respondents on an empirical framework. The Research should include the development and investigation on HIS and implementation on HIS service quality. Majority Lisi hospital s ervice quality is high growth with response of head medical unit in HIS. The components of highly satisfied with financial software service is excellent in HIS in Ernakulam district. HIS have become one of the most challenging and promising fields of research, education and practice for medical informatics, with significant benefits to medicine and health care in general. In addition by using HIS in hospital they have highly improving service quality and satisfaction of the doctors and patients

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