



EVALUATION OF HOSPITAL WORKFLOW BASED ON HOSPITAL INFORMATION SYSTEM TO DESIGN A PAPERLESS HOSPITAL INFORMATION SYSTEM

KEYWORDS

hospital management, information system, implementation

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ABSTRACT

Introduction: Activating the Paperless Hospital Information System involves a multi-disciplinary approach to prepare the new system, design practice workflows, train the care team and manage the adoption process. A thoughtful Paperless Hospital Information System implementation can help the practice adapt more easily to the new system, which will benefit patients, physicians and staff.

Aim: The aim of the analysis is to assess the satisfaction of the staff with the existing hospital workflow system and to analyze the difficulties in implementing paperless hospital information system.

Methods: The study is carried out among all the 50 staffs working in the hospital. The questions were designed with the objective of knowing the opinion of the staff. The answers were designed in 5-point Likert scale in which 1 represents strongly agree, 2 represents agree, 3 represents not certain, 4 represents disagree and 5 represents strongly disagree.

Results: 60% of the staff has agreed that the existing workflow setup is satisfactory while 32% of the staff has disagreed and 8% were not certain about the existing setup. 16. Paperless hospital is a new concept to the hospital. The opinion results show that the staffs are eager to accept the new concept. We could infer that 78% of the staff agrees about the concept of paperless hospital. 10% of the staff strongly agrees and only 6% strongly disagree about the concept.

Conclusion: The process dimension concerns the processes of change, made up of the plans, actions, reactions, and interactions of the stakeholders, rather than work processes in general.

Introduction

The information system is one of the newest and most dynamic departments of the hospital. Initially computers were used for financial and accounting areas. Now, computer technology has pervaded almost every activity and it has revolutionized the flow of information within the hospital. Management has become a science. Management of a hospital is a science and art. It is more than institutional management. According to the WHO definition, "Hospital is an integral part of a social and medical organization, the function of which is to provide for the population complete health care, both curative and preventive, and whose outpatient services reach out to the family and its home environment; the hospital is also a center for the training of health workers and bio-social research". No single agency can deliver the entire range of medical and health care. Achievement of health and medical care can best be a joint function of many professional groups of workers like physicians, nurses, paramedical workers, health educators, health visitors, public health engineers and many others who share a common, unifying goal. The joint effort materializes through team work. The flow of information plays a vital role in a hospital to provide proper health care and better service to the patients. The role of computers has become an essential aspect in health care industry. With advancement of science and technology man has excelled in every aspect of dealing with diseases. The ultimate aim of the health care industry is to provide proper care to the patients at the right time. With the introduction of computer based hospital information system, it is possible to transfer the data faster which results in excellent patient care. The modern complexity of health care delivery system in view of its administrative, legal and clinical interdependencies calls for a total integrated information system. The system should have in depth functionality in all areas of administrative functions. The system should have the capability to integrate with laboratory and other medical devices. All new hospitals can start with a

'clean slate' with integrated solutions on the latest hardware and network architecture. Healthcare information systems allow the automation of internal processes of a health unit. It is impossible to introduce a health information system in an organization without its manpower feel the impact of change. A system will be unable to ever reach its potential if the attitudes of health professionals (e.g. nurses) toward acceptance and utilization are not known.

Aim

The aim of the analysis is to assess the satisfaction of the staff with the existing hospital workflow system, to study their opinion about the introduction of computers in the hospital and their attitude towards the new technology, to analyze their and to design a paperless hospital information system.

Materials and Methods

The study is carried out among all the 50 staffs working in the hospital. The study group consists of 13 doctors, 16 nurses and 21 allied professional health who comprise of obstetricians, anesthetists, sonologist, physician, nurses, physiotherapist, pharmacist, female nursing assistants, laboratory technicians, labour ward staff, receptionist, supervisors, scan room assistants, security. The purpose of the study was explained to them and a questionnaire comprising of 15 questions will be asked to the staff members. The questions were designed with the objective of knowing the opinion of the staff. The answers were designed in 5-point Likert scale in which 1 represents strongly agree, 2 represents agree, 3 represents not certain, 4 represents disagree and 5 represents strongly disagree. The study group is divided according to the profession as Doctors, Nurses and Allied group. Doctors group comprised of 13 doctors, Nurses group comprised of 6 staff nurses, 6 female nursing assistants and 4 female medical attendants. The Allied group comprised of the pharmacists, laboratory technicians,

receptionist, scan room assistants, supervisor, security.

Results

Table 1 AGE AND PROFESSION DISTRIBUTION

AGE GROUP	DOCTORS	NURSES	ALLIED	TOTAL
20 to 30	4%	26%	30%	60%
31 to 40	2%	4%	4%	10%
41 to 50	20%	2%	8%	40%
TOTAL	26%	32%	42%	100%

Table 2 SATISFACTION WITH THE EXISTING WORKFLOW SETUP

PROFESSION	STRONGLY AGREE	AGREE	NOT CERTAIN	DISAGREE	STRONGLY DISAGREE
DOCTORS	6%	8%		8%	4%
NURSES	4%	20%	4%	4%	-
ALLIED	8%	14%	4%	10%	6%
TOTAL	8%	42%	8%	22%	10%

Table 3 STAFF OPINION THAT COMPUTERS WILL ASSIST IN THEIR WORK

PROFESSION	STRONGLY AGREE	AGREE	NOT CERTAIN	DISAGREE	STRONGLY DISAGREE
DOCTORS	4%	18%		4%	-
NURSES	-	22%	-	10%	-
ALLIED	4%	22%	-	8%	8%
TOTAL	8%	62%	-	22%	8%

Table 4 STAFF OPINION ABOUT INTRODUCTION OF PAPERLESS HOSPITAL INFORMATION SYSTEM

PROFESSION	STRONGLY AGREE	AGREE	NOT CERTAIN	DISAGREE	STRONGLY DISAGREE
DOCTORS	4%	20%	-	2%	-
NURSES	4%	24%	-	2%	2%
ALLIED	2%	24%	-	12%	4%
TOTAL	10%	68%	-	16%	6%

The study population includes 50 staff members who are currently working in the hospital. They include doctors, nurses, medical attendants, labour room nurses, laboratory technicians, pharmacist, physiotherapist, receptionists, supervisors and security. Since this hospital is an obstetric hospital we could see that 26% of the staff is male while 74% are female. The age group of 20-30 forms the majority of 60%. We should note that this age group belongs to the technology age group in which they are well exposed to the latest technology such as mobile phones and computers. We could see that there are 26% of the doctors, 32% nurses and 42% of allied professionals. The allied professionals form 42% of the staff who works with computers more than the other two set of staff. Total 18% with 42% which comes to 60% of the staff have agreed that the existing setup is satisfactory while 32% of the staff has disagreed and 8% were not certain about the job satisfaction in existing setup. Out 42% of the allied professional 22% have agreed and 16% of staff have disagreed. This shows that they are satisfied with the existing setup. We could infer that 78% of the staff agrees about the concept of paperless hospital. 10% of the staff strongly agrees and only 6% strongly disagree about the concept.

Discussion

In recent years, Paperless Hospital Information System has been implemented by an ever increasing number of hospitals around the world. Paperless Hospital Information System implementation initiatives tend to be driven by the promise of enhanced integration and availability of patient data, by the need to improve efficiency and cost-effectiveness, by a

changing doctor-patient relationship toward one where care is shared by a team of health care professionals, and/or by the need to deal with a more complex and rapidly changing environment. The implementation of hospital-wide Paperless Hospital Information Systems is a complex matter involving a range of organizational and technical factors including human skills, organizational structure, culture, technical infrastructure, financial resources, and coordination. Implementing information systems in hospitals is more challenging than elsewhere because of the complexity of medical data, data entry problems, security and confidentiality concerns, and a general lack of awareness of the benefits of Information Technology (IT). The first reason is that hospitals have multiple objectives, such as curing and caring for patients, and educating new physicians and nurses. Second, hospitals have complicated and highly varied structures and processes. Third, hospitals have a varied workforce including medical professionals who possess high levels of expertise, power, and autonomy. These distinct characteristics justify a study that focuses on the identification and analysis of the findings of previous studies on Paperless Hospital Information System implementation in hospitals. In dealing with the complexity of Paperless Hospital Information System implementation in hospitals, it is helpful to know which factors are seen as important in the literature and to capture the existing knowledge on Paperless Hospital Information System implementation in hospitals. An organization's context can be divided into internal and external components. External context refers to the social, economic, political, and competitive environments in which an organization operates. The internal context refers to the structure, culture, resources, capabilities, and politics of an organization. The content covers the specific areas of the transformation under examination. In a Paperless Hospital Information System implementation, these are the Paperless Hospital Information System itself (both hardware and software), the work processes, and everything related to these (e.g. social conditions). The process dimension concerns the processes of change, made up of the plans, actions, reactions, and interactions of the stakeholders, rather than work processes in general.

Conclusion

These findings point to the importance of setting realistic expectations, assessing user perceptions throughout the implementation process, designing training to meet the needs of the end user, and adapting training and implementation processes to support staffs who have concerns. It is best to provide users with basic skills in preparation for launch. It is difficult for users to absorb more than this without having used the software in practice. Later, after the users have had a chance to "drive" the Paperless Hospital Information System implementation for a week or so, conduct additional training to help users refine their skills and learn more time-saving tricks, such as developing smart sets and other preferences.

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