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USER PERSPECTIVES OF HOSPITAL INFORMATION SYSTEM IN A QUATERNARY HOSPITAL

Information Technology

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ABSTRACT

Health care sector is rapidly adopting information technology to deliver effective & efficient health care to its clients. A hospital information system (HIS) is a comprehensive, integrated information system designed to manage the administrative, financial & clinical aspects of a hospital. A cross sectional descriptive study was done to explore the existing HIS & its user perspectives in a quaternary hospital. Convenience sampling technique was used to select 30 users who were administered the HIS assessment tool. Analysis was done using descriptive sampling. 60%respondents were ward inventory incharges followed by 30%reception/registration staff. 53% had less than 5 yrs of health care experience.43.3 % had more than one year of working experience on the HIS module. 60 % rated the module as good. 60 % respondents felt that the training provided on HIS module was inadequate. 36.6% respondents did not feel that HIS provides updated information. The majority of users find HIS user friendly. Difficulty in updating information, lack of integration of aspects such as diet requisition, linen management etc were the key areas of concern.

KEYWORDS

Hospital information systems(HIS), user perspectives

INTRODUCTION

Health care is an important part of our society. Providing quality patient care is no easy task. Day by day the burden of clientele challenging the hospital administration to run the show smoothly is increasing. Rising levels of hospital staff experience, patient expectations, changes in the service model and involvement of insurance agencies have caused huge changes in the hospital workflow. Information technology has made a significant positive impact in managing and integrating clinical, financial & operational information that grows with the practice. Most professionally run hospitals & clinic now rely on hospital information systems that help them manage all their medical & administrative information. A Hospital Information System is essentially a computer system that can manage all the information to allow health care providers to do their jobs effectively.1 These were first introduced in 1960s and have evolved with time and modernization. Most hospitals utilize the basic form that helps in managing billing & inventory. The World Health Organization's 2000 World Health Report ranked India's healthcare system at 112 out of 190 countries.2 Deloitte Touche Tohmatsu India has predicted that with increased digital adoption, the Indian healthcare market, which is worth around US$ 100 billion, will likely grow at a CAGR of 23 per cent to US$ 280 billion by 2020. The Government is also emphasizing on the e-health initiatives such as Mother & Child Tracking System (MCTS) & Facilitation Centre (MCTFC). [3]

Given the nature of the healthcare ecosystem in India, several hospitals and other health facilities are waking up to the need for 'patient-centric care'. The HIS approach to healthcare delivery leverages the systematic application of healthcare information technology to facilitate the accessing and sharing of information, as well as to allow subsequent analysis of health data across systems.

The ambition of connected health is to connect all parts of a healthcare delivery system, seamlessly, so that critical health information is available when and where it is needed. The three milestones on the journey to connected health are Healthcare IT adoption, Health information exchange and Insight driven healthcare.4 A centralized information system can be customized according to the specific requirements of a hospital. A hospital can tell the solution provider its needs and the applications can then be molded to deliver exactly what was demanded. Users feedback and perspectives are essential in gaining insights and doing necessary changes as per the users.

Administrators are realizing the need of collecting data regarding end user experience with a view to develop better system solutions. A study was done by Syed Murtuza Hussain Bakshi & Shakeel M (2012) at a tertiary hospital in Hyderabad to know the current status of HIS and to take an overview of enhancements. The study identified motivating factors such as user friendliness, enhanced communication, Decision making & hindering factors like training for employees, fully integrated system, seeking help, cost containment & non existence of computers.5 Mohamed Khalifa & Osama Alswailem at King Faisal Specialist Hospital & Research Centre in Saudi Arabia (2015) explored HIS acceptance and satisfaction by end users and investigated the influential factors that might increase or decrease acceptance and satisfaction levels among different healthcare professionals. The researchers concluded that three main areas showed 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 computers at 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. [6]

The present study was done to explore the existing HIS and its user perspectives in a quaternary care hospital in Delhi. The recommendations that emanate from the study findings will help understand the user perspectives. The knowledge from the findings will also contribute to recommendations and aspects to further improve the HIS module.

Objectives

1. To describe the implementation of HIS in a quaternary hospital in Delhi
2. To explore the user perspectives with regard to HIS.
3. To identify likely aspects for further improvements

The conceptual framework used for this study was input process output model. The input–process–output (IPO) model, is a widely used approach in systems analysis.

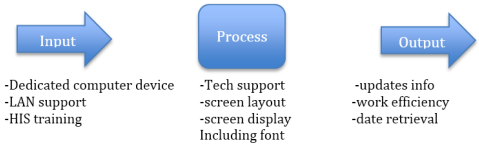

Fig 1: Conceptual framework using input process output model

MATERIALS & METHODS

A descriptive cross sectional study was done to explore the existing HIS and its user perspectives in a quaternary hospital in Delhi in nov 2017. The study used convenience sampling to include 30 hospital staff that were using HIS software. These included data entry operators at central registration, admission counter and nursing staff at ward level responsible for patient related activities. The term ward masters used in the article refers to inventory in-charges of the ward responsible for transfer out and discharge paperwork as well as MES complaint initiation and ward maintenance. The study was limited to samples currently working on the HIS, available during data collection period and those willing to participate in the study. The tool had two

parts. Part A consisted of 4 items pertaining to user demographics such as age, type of job, total healthcare experience & total experience of HIS module. For gathering the user perspectives of the existing HIS, a HIS assessment tool was prepared .The tool contained 20 items on a 5 pointer likert scale. Four main aspects were covered. These included General HIS assessment, Accessibility & availability, HIS & patient care & satisfaction in using HIS. 5 experts established the validity of the tool. The investigator approached the IT department of the hospital and conducted semi structured interview of IT professionals to understand the HIS module in use. Thereafter the investigator visited the wards/ IT cells/registration/ reception counters and various depts. the questionnaire was administered to them after a brief description about the study and taking verbal informed consent. Coding of the tool ensured the ethical aspect of confidentiality & anonymity. The scores were further classified as poor, average, good or excellent. Analysis of data was done by descriptive statistics.

RESULTS

Table 1: Distribution of samples as per job type

N=30

Job type	Number	Percentage
Reception/registration	9	30
Ward master/ward level	18	60
MI Room	01	3.33
Others	02	6.67
Total	30	100

Table 1 indicates that majority of the samples (60%) were ward masters or handling HIS module at ward level followed by 30% at reception/ registration level. The samples are proportionate of the population under study.

Table 2: Distribution of samples as per total health care experience

N=30

Health care Experience in yrs	Number	Percentage
<5	16	53.33
5-10	02	6.67
>10	12	40
Total	30	100

Table 2 shows that out of 30 samples, 53.33% had less than 5 yrs of health care experience whereas 40% had more than 10 yrs of health care experience.

Table 3: Distribution of samples as per total experience on HIS module

N=30

Experience on HIS modules	Number	Percentage
<06 months	08	26.67
6months -01 yr	09	30
>01 yr	13	43.33
Total	30	100

Table 3 indicates that 43.3% had more than 01 yr of experience on HIS module whereas 30% had experience between 06 months to 01 yr and 26.7% had less than 06 months of experience.

Fig 2: Users rating of the HIS module

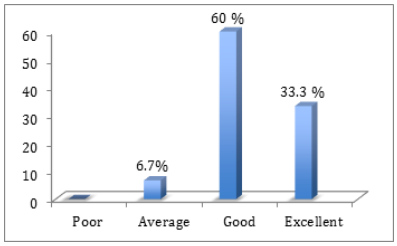

Fig 02 indicates 60% rated HIS module as good whereas 33.3% rated it as excellent. None of the samples rated HIS module as poor whereas only 6.67% scored it average.

Fig 3: Item wise analysis of user response

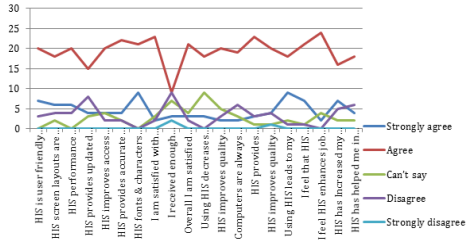

Fig. 3 depicts responses of samples to the items of HIS Assessment tool. The lowest agreement or highest disagreement was regarding receiving enough training on HIS (item 9). The other aspect where the users showed major disagreement was whether HIS provides updated information (item 4). 60% respondents felt that training on HIS module was not enough. 36.6% respondents contradicted with the statement that HIS provides updated information

Users reported system related errors such as difficulty or inability to update data in real time, difficulty in updating info of existing patients, connectivity issues etc. An important problem faced was unavailability of All ICD codes in the system. As a result the user had to refer other sources or use Internet search engines in a different IT device to find and record the correct ICD code for the diagnosis in the system. Suggestions by users included incorporation of areas such as diet requisition, linen management and complaint initiation in the system. These components were present in an inactive form in the HIS module being used.

DISCUSSION

The results of the study reflect that majority of users showed positive perceptions with the HIS module and its implementation in their daily practice. The findings are similar to those of the study done by HK Takhti, Dr AA Rahman, S Abedini in Malyasia on nurses perceptions on the impact of hospital information systems on patient care.7 Initial orientation training helps familiarise the users to the system leading to better utilisation & user satisfaction. Regular worskhops/ training activity is needed with the users for troubleshooting, clarifying doubts. The study brings to focus key areas for improvement in order to integrate and utilize the technology to its fullest. The findings are consistent with conducted by A Ismail, AT Jamil et al in Malaysia, which also identified training and system support as important elements reducing productivity.8 Users in the present study suggested integration of Medical equipment management with the module. This has been supported by a study by S Rewar in Delhi in 2012, which concluded that HIS is useful in hospital equipment maintenance in different departments & different locations in hospital.9 Similar areas which will smoothen the administration with activation /integration are dietary services, linen services etc. Another recommendation is to network/activate the pharmacy module at ward level. This will enable indenting & requisitioning of drugs & other medical store supply at the ward level. This process is being done manually at present & very cumbersome. Using HIS module will reduce lot of paperwork while introducing transparency, quality controls & better overall inventory management while facilitating ease of work for the nurses dealing with the drug requisition. It will also widen the network of HIS users to include the nurses, which heretho are not its users. Similarly integration of Laboratory system to the end users that is at ward level will greatly improve the reporting services. It will reduce a major component of disatisfaction at patient end due to non-availability /missing reports. Again this component will require involvement of Nurses at ward level.

Conclusion

The hospital management software is aimed at simplifying day-to-day medical activities. There are numerous different layers in the hospital process pipeline and it requires different modules to govern them. Hospital Information System in each hospital has its strengths and weaknesses. Regular training continued IT support and connectivity are keys to successful utilization of Hospital information systems.

Conflict of interest: None

REFERENCES

1. Aghazadeh S, Aliyev A, Ebrahiminezhad M. Review the role of Hospital information systems in medical services department. International Journal of Computer theory & engineering 2012: 4(6): 866-870
2. Jayaran VR. 5 things to know about Indian Health care system. Sep 2014 http://www.forbesindia.com/blog/health/5-things-to-know-about-the-indias-healthcare-system/ (cited on 19 Nov 17)
3. Health care industry in India. Indian Brand equity foundation. https://www/ibef.org/industry/healthcare-India.aspx. (cited on 19 Nov 2017)
4. Varma N. Health care scenario in India. Feb 2013. http://ehealth.eletsonline.com/2013/02/healthcare-scenario-in-india/ (cited on 19 Nov 2017)
5. Bakshi SMH & Shakeel M. A study of Hospital Information system at a tertiary teaching hospital. Global Journal of Computer Science & Technology. 2012:12(10)
6. Khalifa M, Abswailem O. Hospital information system acceptance & Satisfaction: A Case study of a tertiary care hospital. Procedia Computer Science 2015: 63: 198-204.
7. Takhti HK,Rahman AK, Abedini S. Impact of Hospital information systems on patient care. Canadian journal of nursing informatics: 6(4). Available from http:/cjni .net
8. Ismail A, Jamail AT etal. The implementation of HIS in tertiary hospital in Malaysia: A qualitative study. Malaysian journal of Public health Medicine 2010:10(2):16-24.
9. Rewar S. Research paper: HIS in Clinical engineering Deptt. International journal of Scientific & Engineering 2012:3(8).