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Original Research Article

A Study of Impact of Medical Records on Healthcare Management at Tertiary Care Teaching Hospital

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Medical records, impact, Healthcare, Electronic records, Quality Assurance.

Abstract

Background: The comparative and qualitative medical records have a vital role in public health, clinical care and planning for any institution. No institution can properly provide better clinical care without proper preservation and maintenance of good medical record. **Objective:** To study the existing Hospital Information System in the MRD and to evaluate the impact of maintenance of medical records on healthcare. **Methods:** A hospital based cross sectional study was conducted to find out the deficiencies, if any, in the existing Hospital Information System. **Results:** The overall opinion of the Heads of unit, CMOs/MOs, doctors and patients about the existing Hospital Information System in the hospital is satisfactory (77%) and 23% feel that the system is poor. The majority of the Heads of Units, Professors, and CMOs, (80%) agree that the existing Hospital Information System does not help in the Quality Assurance Programme (QAP) as well as in enhancing the functions of the supportive services. Majority of the doctors disagree that the Hospital Information System helps in infection control (62%) and in defining the community needs (88%). Majority of them agree that the Hospital Information System helps in education and research (60%). **Conclusions:** The present scenario in India is that most of the MRD are partially computerized. This system exists in some Health Care facilities, where entries are made by different Health care providers, such as Physicians, Nurses and therapists, into the computer in different nodes in a local area network.

1. Introduction

Medical records are the integral part of medical practice/ medical profession. These records are important documents for the doctor, to the patient and to the society in general, more so in situations

like medical emergencies, negligence suits, medical researches etc.¹ Medical records are documentary evidences, which are of immense help not only in medico legal cases but also in defending the doctor

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in cases of negligence suits or allegations against him/her. There are many cases / instances which are decided in favour of doctors only on the grounds of well kept and well reproduced records in consumer courts.² Medical records have assumed more importance and significance because of application of Consumer Protection Act to medical profession. However, doctors because of their busy schedule either don't maintain records or records are kept very brief, incomplete, cryptic records which are of no use in court matters.³ Over the last few decades, medical sciences have made great strides leading to radical improvements in the modes of investigations, therapeutic activities and surgical procedures. This has enhanced the imperative need to have authentic and accurate medical records.⁴ India provides quality and affordable service in order to attract health tourists from every nook and corner of the world. The health care provisioning is not equal in the country. The differences are huge, as the as rural and urban areas have vastly different technological landscapes. The adaptation of the technology is also not equal, yet there is certain level of technology has been employed by both private and public level operators.⁵ Every department and subsystems in an institution can be viewed basically as an information-processing agency. The Medical Record Department (MRD) is no exception. It is not a place where patient charts, complete or incomplete, are dumped and forgotten thereafter. The administration can actively use this department for monitoring and controlling the quality of patient care; in assessing of the performance of the medical staff; in keeping check on how some of the hospital's resources are being put to use; and in gathering data for short term and long term decisions.⁶ Most of the present MRDs have been changed into departments of hospital information management in order to take up responsibilities to function more effectively and efficiently in this regard. This new drift will support the need for an improved Hospital Information System making the MRD the main source of health information. It is no doubt that a carefully planned Hospital Information System and intelligently used information will be a great asset to any health care industry. The Hospital Information managers must have the necessary skills to facilitate and manage this transition and bridge the gap in the changing patterns switch over to 21st century.⁷

2. Objectives:

1. To study the existing Hospital Information System in the MRD.
2. To see the impact of maintenance of medical records on healthcare at tertiary care teaching hospital
3. To identify the shortcomings, if any, in the existing Hospital Information System in the MRD.
4. To suggest the necessary steps to improve the existing Hospital Information System in the MRD.

3. Material and Methods:

Study Settings:

The study was conducted at Pravara Rural Hospital of Rural Medical College, Loni, Tal. Rahata, Dist. Ahmednagar, Maharashtra - a tertiary care teaching hospital with 1275 bedded Multi-disciplinary, Super-specialty hospital in a rural area.

Study population:

The Department of Medical Records of the hospital was studied for assessing the Hospital Information System and its impact on healthcare. Descriptive research approach as adopted for this study. Descriptive statistics have been used to find out the deficiencies, if any, in the existing Hospital Information System. The target population consisted of Faculty (Heads of the Units / Professors) / Specialists / Chief Medical Officer (CMO) / Medical Officers (MO) from clinical departments as Medicine, Paediatrics and Neonatology, Surgery, Obstetrics and Gynaecology, Orthopaedics, Ophthalmology, ENT, TB and Chest, Plastic Surgery, Cancer, Casualty, Dental, etc. along with Nursing Superintendent and Patients in the hospital. The data were collected from a sample of 200, consisting of 84 faculties and specialist doctors from various departments, (Heads of Units / Professors), 1 Medical Superintendent, 1 Nursing Superintendent, 4 CMO's, 7 MO's, 3 Dentists and 100 patients selected by the disproportionate stratified sampling technique. The inclusive criteria for selecting the sample, were the Medical Superintendent, Heads of the Units, Professors, Nursing Superintendent and CMO's who involved in decision making process, doctors with experience of more than five years, and the literate patients, willing to participate in the study.

The tool used to collect the data was a structured, closed ended questionnaire. The questionnaire was constructed with emphasis on

the content, clarity and simple and local language. The scoring for the Medical Superintendent, Heads of the Units, Professors, Nursing Superintendent and CMO's has been done on a four-point scale and the scoring for the patients is on a three-point scale. The scoring has been given according to the nature of the questions. A pilot study was conducted for the patients, to check the validity and feasibility of the study. The tool was administered to subjects, for ascertaining the reliability. The reliability calculated by using split method $r = 0.63, 0.81$ and 0.71 , for Heads of the Units, Professors /Associate Professors, and CMO's and the patients respectively, which was high and satisfactory.

Statistical methods:

The data is presented as the numbers with percentage or mean with Standard Deviation (SD) as appropriate. All the associations were adjusted for potential confounders. The entire data was analyzed using a Statistical Software SYSTAT version 12 (A licensed copy).

4. Observation & Discussion:

It was observed that decentralized filing system is being followed in the MRD of the tertiary care teaching hospital as per the guidelines by statutory authorities like MCI / Govt. of India i.e., the department is divided into two units – Out Patient (OPD) and In-Patient (IPD). The other information available to the hospital management includes:

1. OPD and IPD Statistics
2. Death cases
3. Left against Medical Advice (LAMA) cases
4. Long standing cases
5. Cash and Collection reporting

Structured questionnaires were used to find out the deficiencies in the existing system. The various studies conducted earlier, shows the importance of Hospital Information System (HIS) in an organization. It lays emphasis on the nature of the modern organization, the current legal and social environment; advancing technology and the expanding role of management that have created information needs which cannot be satisfied by traditional means. A closer examination of these four areas will reveal the demand for more sophisticated management information This hospital does not have a separate admission department and all the registration and admission procedures are through the MRD. The MRD is partially computerized. In

addition, an in-hour Hospital Information System exists in this hospital. The study reveals that the department is providing information to the health authorities regularly. The overall opinion of the Heads of units/Professors, Medical Superintendent / Nursing Superintendent, CMOs/MOs, Dentists and patients about the existing Hospital Information System in the hospital is satisfactory (82%) and 18% feel that the system is poor (**Table No.1, Fig. 1**).

The primary purposes of the health record are associated directly with the provision of patient care services. The secondary purposes of the health record are related to the environment in which healthcare services are provided.⁸ However, it was found that the majority of the Heads of units, Professors, CMOs/MOs (60%), are disagree with the statement that the maintenance of medical records of the hospital helps in discharging effectively their managerial responsibilities as well as in enhancing the inter and intra hospital communication (70%). Nearly 70% of the Heads of units, Professors, CMOs/MOs agree that the statistical information from the MRD helps in decision-making. With an increase in the number of third-party payer's utilization requirements, the admitting and utilization management are in frequent communication.⁹

The majority of the Heads of units, Professors, and CMOs/MOs, (48%) agree that the existing Hospital Information System does not help in the Quality Assurance Programme (QAP) as well as in enhancing the functions of the supportive services.¹⁰ Half of the managerial heads agree that the Hospital Information System does not help as a tool in the various utilization processes.¹¹ The various studies conducted earlier regarding information system reveals the benefits for doctors and nurses and includes, qualitatively better data, more available data on patients, direct consultations of colleagues and experts, use of decision-based systems, reduced work load, the gain of time, and the availability of administrative support.^{6,12,13}

Majority of the Heads of units, Professors, and CMOs/MOs, do not believe that the existing Hospital Information System can help to reduce the cost of patient care (65%) or shorten the stay of the patient in the hospital (66%) (**Table No.2, Fig. 2**). The majority of the Heads of units, Professors, and

Table No.1: Opinion about the existing system of maintenance of medical records:

Category	Response			
	Good	Moderate	Poor	Total
Medical Superintendent / Nursing Superintendent	2 (100%)	-	-	02 (1.00%)
Heads of the Units / Professors	39 (46.43%)	19(22.62%)	26(30.95%)	84 (42.00%)
CMO / MO	2 (18.18%)	5(45.45%)	04(36.37%)	11 (5.50%)
Dentists	1(33.33%)	1(33.33%)	1(33.33%)	03 (1.5%)
Patients	62(62.00%)	34(34.00%)	04(4.00%)	100 (50.00%)
Total	106(53.00%)	59(29.50%)	35(17.50%)	200

Table No.2: Impact of the existing system of maintenance of medical records:

Impact of the medical records on	Responses			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Decision making	2(1%)	120(60%)	62(31%)	16(8%)
Utilization of resources	2(1%)	80(40%)	114(57%)	4(2%)
Management and review of care	140(70%)	60(30%)	-	-
Reimbursement of care	114(57%)	80(40%)	6(3%)	-
Research	157(78.5%)	40(20%)	3(1.5%)	-
Accreditation	120(60%)	80(40%)	-	-
Enhances communication	-	44(22%)	82(41%)	74(37%)
Strategic planning	-	84(42%)	72(36%)	44(22%)
Quality assurance	-	40(20%)	160(80%)	-
Reduces waiting time	2(1%)	78(39%)	120(60%)	-
Utilization process	2(1%)	92(46%)	64(32%)	42(21%)
Medical audit	46(23%)	102(51%)	52(26%)	-
Reduces the cost	27(13.5%)	42(21%)	131(65.5%)	-
Shorten the stay	-	35(17.5%)	133(66.5%)	32(16%)
Continuity of patient care	12(6%)	24(12%)	9(4.5%)	155(77.5%)
Effective referral system	29(14.5%)	67(33.5%)	101(50.5%)	3(1.5%)

Table No.3: Disadvantages of the existing Hospital Information System (HIS)

Impact of the medical records on	Responses			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Non-Existence of ward Computers is affecting patient care	-	170(85%)	30(15%)	-
OPD consultations take longer time	-	160(80%)	10(5%)	30(15%)
Delay in getting longer time	10(5%)	140(70%)	50(25%)	-

Table No.4: Opinion about current HIS with respect to Internal and Personnel Performance:

Impact of the medical records on	Responses			
	Strongly Agree	Agree	Disagree	Strongly Disagree
Infection control	-	72(36%)	124(62%)	4(2%)
Defining Community needs	-	24(12%)	138(69%)	38(19%)

Fig.1: Opinion about existing system of maintenance of medical records:

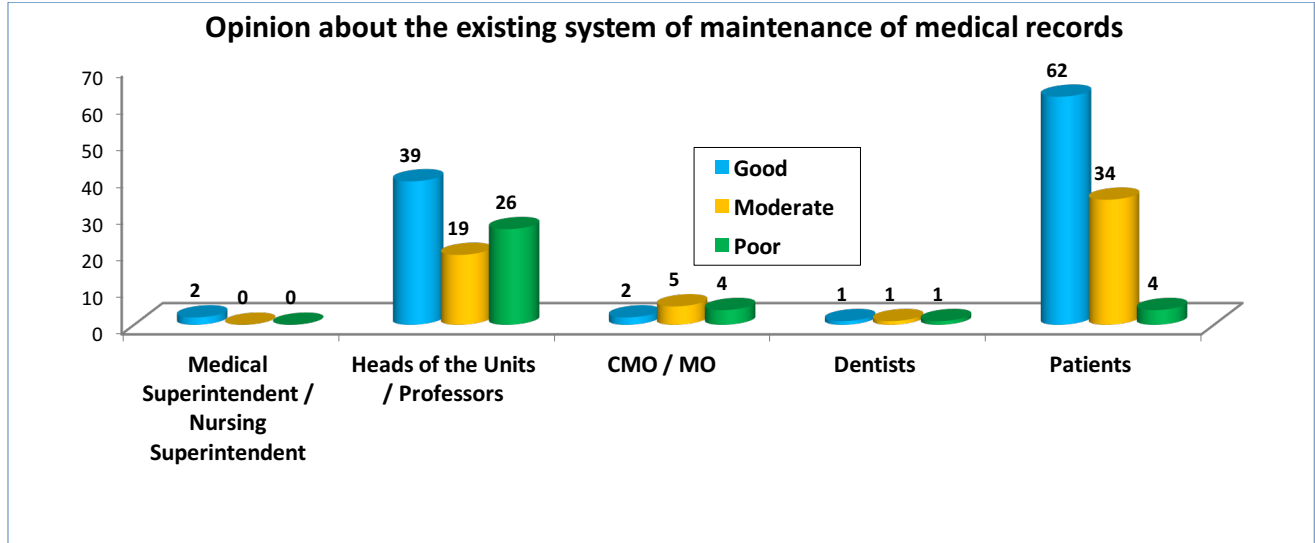


Fig.2: Impact of the existing system of maintenance of medical records:

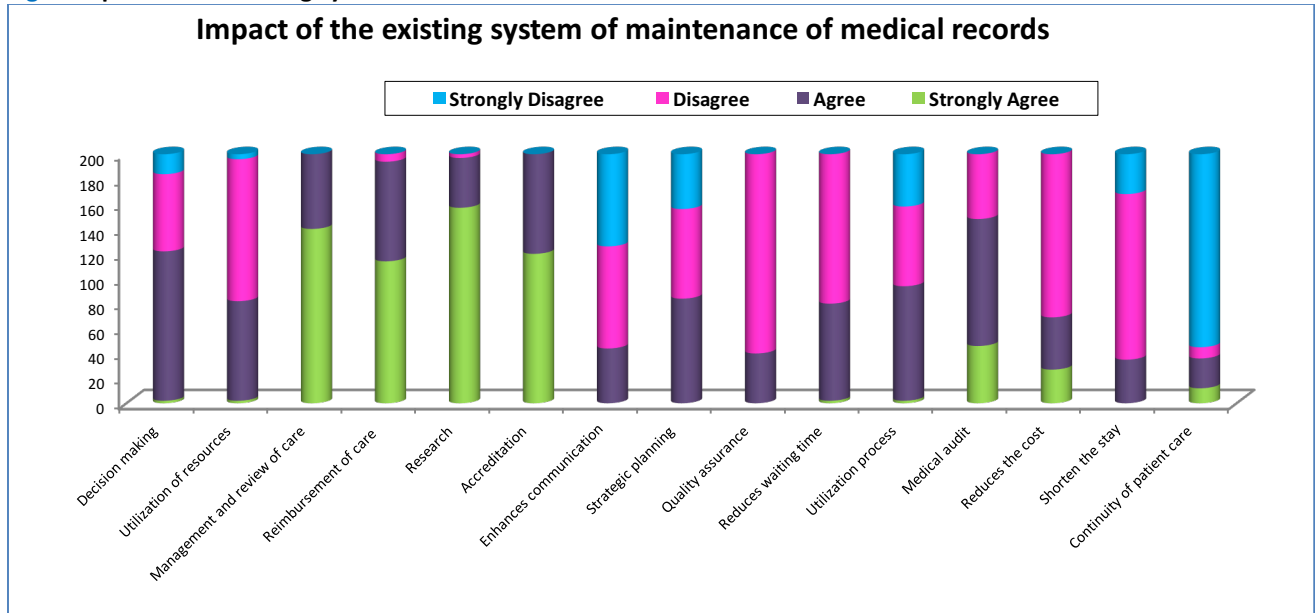


Fig. .3: Disadvantages of the existing Hospital Information System (HIS)

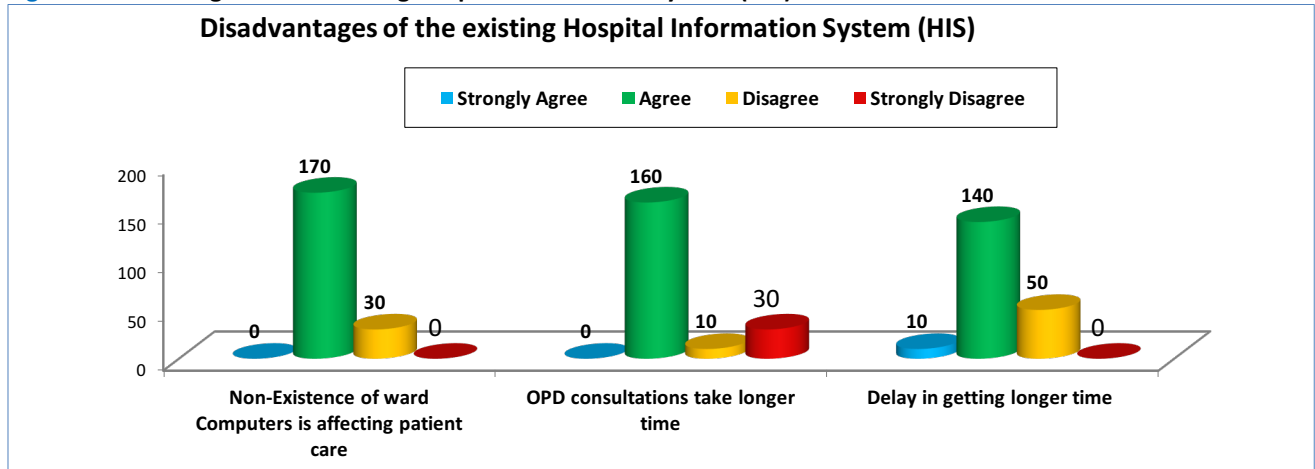
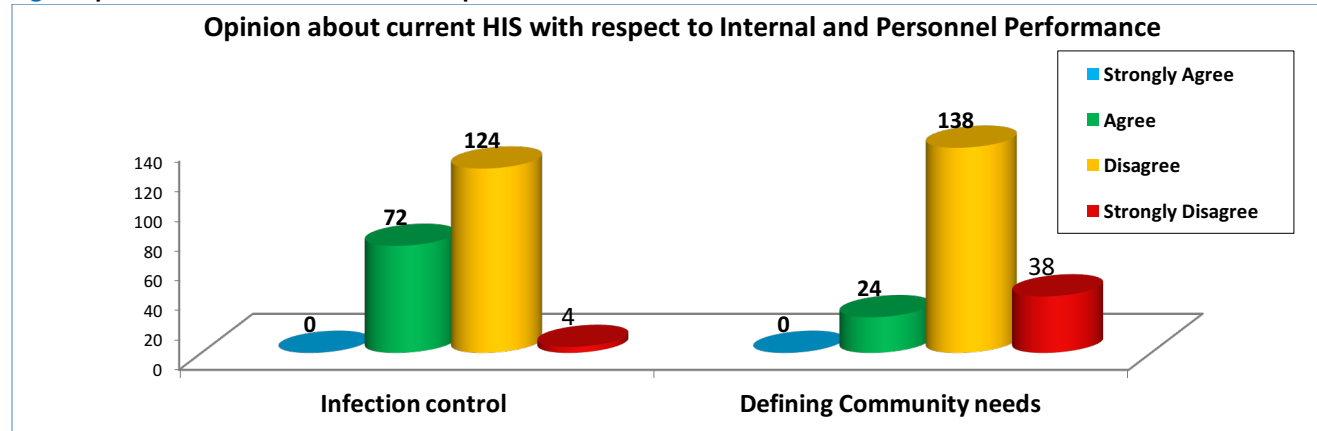


Fig.4: Opinion about current HIS with respect to Internal and Personnel Performance:

CMOs/ MOs (85%), feel that the nonexistence of ward computers are a delay in providing the expected patient care. They also feel that the existing Hospital Information System does not help either in making the OPD consultations quicker or in generating quick laboratory reports (Table No.3, Fig. 3).

Majority of the Heads of units, Professors, and CMOs/MOs, disagree that the Hospital Information System helps in infection control (62%) and in defining the community needs (88%). Majority of them agree that the Hospital Information System helps in education and research (60%) (Table No.4, Fig. 4). The different benefits of information system to the community are, to prepare a programme of health education for the area (with priorities for the health activities), information on the indicators of health which can help to focus attention on target group for specific health services, and, help to prevent epidemics.^{14,15}

5. Conclusions and Recommendations:

The study reveals that the overall opinion of the Heads of unit, CMOs/MOs, doctors and patients about the existing Hospital Information System in the hospital is satisfactory. However, it was found that the majority of the Heads of unit, CMOs/MOs, and doctors are disagreeing against the maintenance of medical records of the hospital helps in discharging effectively their managerial responsibilities as well as in enhancing the inter and intra hospital communication. Also, most of the CMOs/MOs, and doctors are agreeing regarding the statistical information from the MRD helps in decision-making. Majority of them agree that the

Hospital Information System helps in education and research.

The present scenario in India is that most of the MRD are partially computerized.¹⁶ This system exists in some Health Care facilities, where entries are made by different Health care providers, such as Physicians, Nurses and therapists, into the computer in different nodes in a local area network.¹⁷ Majority of the beneficiaries of Hospital Information System, are aware about the advantages of computerisation in the Health Information System (HIS) in providing better health care.¹⁸ The exciting possibility of a modern and computerised information system is not too far. In the coming years we can visualize the patient record existing in electronic medium, where a patient can have a single record from birth to death that can be accessed from anywhere in the world.¹⁹

As the country's technological infrastructure develops further to penetrate rural areas, it can be easy to implement technological solutions like Electronic Health Records (EHR) in the industry for economical development too. According to the results of the study most of the healthcare employees are in need of the sophisticated information technology, as they have to increase the efficiency to face the competition of the sector. They must have a good training in order to function well. These facts show that the Indian health care service should be enhanced with the modern technology. As a final touch the staff of the health care service must get themselves ready to embrace the bliss of the technological development and it is recommended that the solution be implemented in stages while

adapting to technological changes for long term sustainability.

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