Role of Health Information Systems in providing Qualitative health care services with reference to Doctors practising in Navi Mumbai

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Abstract:

The present study has made an assessment of Doctors using Health Information Systems (HIS) for clinical data management and effectiveness was measured based on certain dimensions. Health Information Systems help in easy management of clinical data. HIS helps in better coordination of information among all those who are involved in delivering health services as a team work where the role of the doctor is important but at the same time the involvement of other health workers is equally important to render qualitative care. The HIS facilitates easy communication and maintains transparency by acting as an aid in better decision making about patients care. The paper also makes an attempt to understand the relevance of HIS in Practising Evidence Based Medicine (EBM).

Key words : *Health Information Systems, Evidence Based Medicine, Clinical Data management, Decision Making, Health*

Objectives of the Study :

- To understand the concept of Health Information systems
- To study the purpose of health information systems based on certain dimensions as an application for practising Evidence based medicine.
- To study the Impact of usage of Health information systems by medical practitioner's for clinical data management and as a tool for better decision making in patient's care.

Limitations of the Study : The study is based only on the opinion of Sample size of 50 respondents, hence it may not represent the overall scenario with regards to usage and effectiveness of Health Information Systems .

Introduction : The increasing convergence of technology in health care has brought about a huge opportunity for health care providers to interact with patients, improve the patients experience and operate more efficiently. Providing qualitative care is a complex endeavour which depends on clinical skills and experience but more dependent on patient information and medical knowledge in the current scenario as Evidence based medicine is the preferred choice for health care decisions(Bose,2003). Evidence based medicine (EBM) is the judicious and reasonable use of modern, best evidence in making decisions about the care of individual patients. It integrates clinical experience and patient values with the best available research information. It aims to increase the use of high quality clinical research in clinical decision making (Masic et.al,2008). Clinical experience is the expertise of health care professional in terms of education, skills and practice. This expertise helps the health care professional to handle the concerns and expectations of patients (Sackett et al., 2000). The purpose of EBM is to provide a stronger scientific foundation for clinical work, in order to achieve consistency, quality, and safety in care (Timmermans & Mauck, 2005). To successfully practice EBM the availability of information about the patient such as diagnosis, prognosis, therapy and medical guidelines is the key. To practice EBM, Successful implementation of health information systems is important for seamless flow of patient information to provide qualitative care.

Health Information systems : Health information systems integrate data collection, processing, reporting, and use of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services(Rainer Sauerborn and Theo Lippeveld,2000). As per World Health Organization (WHO) health information systems are critical for achieving health for all by the year 2000 (Mahler, 1986). A report of a WHO meeting (1987) clearly links improved management to improved health information systems. Healthcare information systems (HISs) help to enhance the quality and patient-centeredness of care, as well as to improve the efficiency and safety of health services.

Role of health Information Systems in Evidence-Based Practice: Health Information systems helps to capture, transform and maintain data. The data is processed at three level i.e raw data, processed data, and knowledge (Rodrigues,2000). If the raw data is valid, then the processed data, or ''information'', can be considered as equivalent to evidence/Knowledge contributing to clinical research. Such evidence helps to take appropriate decisions. When such evidence is processed through internet based

health communication technology contribute to clinical and administrative repository of health data thereby helping in knowledge management. Such information is also disseminated by uploading in public domain information materials and resources. Health Information Systems contribute to evidence-based practice through six application areas

- Contextual and case-specific information
- Clinical data repositories
- Administrative data repositories
- Decision support software
- Internet-based interactive health information

Healthcare information systems (HISs) comprises of computerized physician order entry (CPOE) and computer-based patient records (CPRs) which help to enhance the quality and patient-centeredness of care and safety of the services. The organizational structure of health care organization is hierarchical and functional in nature as there are various specialized departments employing different categories of health care professionals. Internally each department has its own specialized structure, hierarchy and professionals playing role in the care process. During this care process the patients move across departmental units to receive care from different health care professionals. Since health care professionals take responsibility for their particular component of speciality , only the patient has an overview of the whole process. To facilitate easy patient engagement during this whole process the patient information is organized and managed by information systems .Managing the patients record through health information systems helps not only health professionals but also gives patients more access to their health information which encourages them to participate in their own care, self-manage their health condition, increase understanding of their medical issues, and improve patient–provider communication (Ricciardi et al., 2013; Delbanco et al., 2012).

There is need for high degree of communication and cooperation among all the health professionals who are engaged in actions with a primary intent to enhance health and this can be achieved though efficient management of health information systems. For instance a diabetic patient who had to undergo a surgery for a fracture in the knee will require treatment from an orthopaedist, diabetologist, radiologist, hospital nurses, home care nurses, dietician, physiotherapist for hospital as well as taking care at home. Each of these professionals generate information required for each other right from diagnosis stage. When such information is not protected and passed on it is impossible to practice EBM. Therefore for practising EBM everyday, health information systems play a very important role in storing and processing the vital information about the patient for effective care.

Statement of the Problem

The success or failure of practising evidence based medicine through effective Health Information Systems will depend on the end user's application, utility and satisfaction in the usage of HIS. An attempt is made through this study to understand the efficiency of Health information systems in its usage and support for medical practitioners in better decision making.

SCOPE OF THE STUDY

The present study is confined to study the effectiveness of usage of Health Information Systems in practising evidence based medicine by Doctors practising in Navi Mumbai.

METHODOLOGY

Researcher has adopted Random Sampling method for the study. Primary data and secondary data were used to collect facts and figures. Primary data is collected through questionnaire from Doctor's using Health Information Systems for clinical data management. Secondary data is collected through research papers and reports

SAMPLE SIZE

The total sample size used for the study is 50 respondents, out of it 28 are Male respondents and 22 are Female respondents , who are Doctor's practising in Navi Mumbai and using Health Information Systems for clinical data management.

DATA ANALYSIS

The complete data was checked, classified, numbered, tabulated, and the results were highlighted by preparing tables. Percentage was calculated wherever necessary for better analysis and interpretation. Tables, Pie charts and bar charts are used for data interpretations for better understanding and Analysis of report, which is presented as follows :

Table 1. Level of Satisfaction of usage of HIS by Doctors

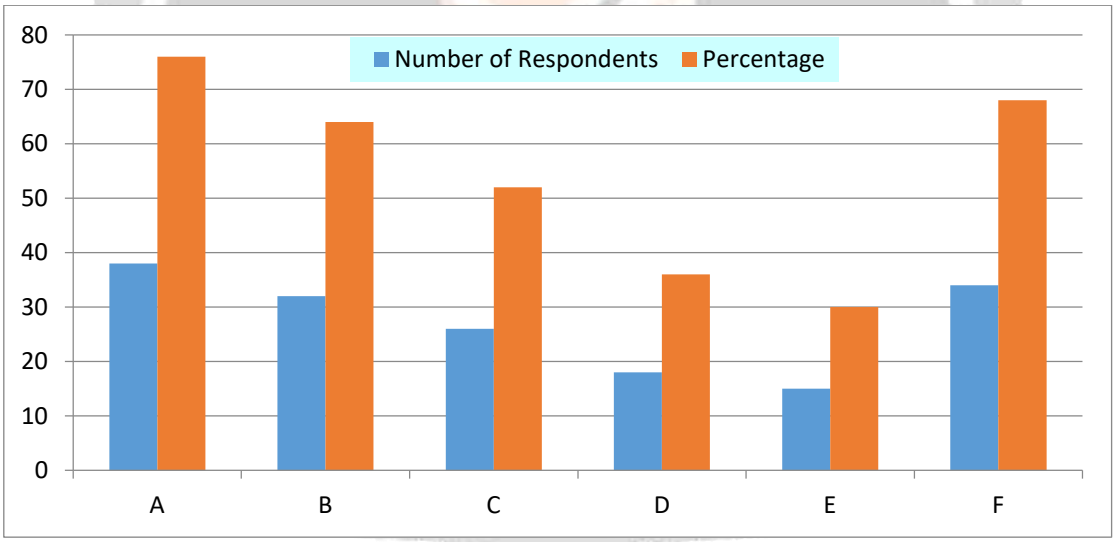
Particulars	Number of Respondents	Percentage
Highly Satisfied	32	64
Satisfied	12	24
Dissatisfied	4	8
Highly Dissatisfied	2	4
Total	50	100

Interpretation : 64% of the respondents are highly satisfied with the usage of Health Information systems in their practice. Only 4% of the respondents are highly dissatisfied with the usage of HIS. Since majority of the doctors are highly satisfied it can be inferred that Health Information Systems usage is helping in providing qualitative and efficient health care services.

Table 2. Table representing the dimensions of usage of Health Information systems

Dimensions	Category	No of Respondents	Percentage
Easy Clinical Data Management	A	38	76
Better coordination	B	32	64
Ease in communication & interaction with Patients	C	26	52
Helps to maintain Transparency	D	18	36
Acts as aid to meet patient's values and expectations	E	15	30
Acts as Decision support system	F	34	68

Graph 1 : Graph Representing the Category of usage of Health Information Systems



Interpretation : The above graph represents the respondents assessment of usage of Health information systems in their practice on various dimensions. 76% of the respondents feel that usage of Health Information Systems helps in easy clinical management of data of patients.64% of the respondents opinion is that better coordination of work is possible through health information systems. More than half of the respondents i.e. 52% are of the opinion that health information systems helps in better communication and interaction with patients. 36% of respondents feel that health information systems helps to maintain transparency of information with patients. Only 30 % of the respondents feel that Health information systems acts as an aid to meet patients values and expectation in health delivery services.68% of the respondents are of the opinion that health information systems serves as a decision support system and helps to take decisions quickly.

Findings :

- Majority of the doctors are highly satisfied with the usage of health information systems which signifies the benefits for providing qualitative health care services
- Maintaining the database of patients has become easy for the doctors with the help of health information systems.

- The health information systems acts as a easy communication system with patients and also to coordinate with other health workers in delivering effective care

- Since the face to face interaction and assurance by the doctor is more convincing for the patient the health information systems role is minimal in meeting the expectations and values of patients.
- Health information systems acts as an aid in quick decision making for providing timely care as coordination with other members of health care team is better managed.

Conclusion and Challenges in managing Health Information Systems :

With the changing times and utility of Information and communication technology in almost all the sectors its application is inevitable in the field of health care also. The doctors as key service providers are making an attempt to use health information systems resulting in providing qualitative health care. This change has brought about following changes:

- In general the horizontal organizational structure of a health care unit implement autonomous information systems. The patients information stored in different autonomous systems make it difficult for health care professionals to access information due to interoperability issues. This will not help to present a clear picture of the patient.

- Since vital information has to be passed on across units by the health professional it involves administrative work also which may not be possible all the time due to emergency care visits.

- Rescheduling the medical procedures or repetition of procedures not only cause time delay but also result inflow of complex set of information about the information which may be missed out or difficult to store.

- The patient is also an important link in the transfer of information between different healthcare providers. When patients recount medical history omissions can happen in information exchange. This usually happens when the health care professional does not receive patient information on time by the other providers.

On the whole it can be inferred that health information systems plays a vital role in providing qualitative care and can bring about a transformation in health care sector when all the service providers and beneficiaries of health system utilise it in a positive way.

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