

# Study of Awareness and Use of Information Technology amongst Healthcare Practitioners in Tertiary Healthcare Hospital in Metropolitan City

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## ABSTRACT

The research aims to find the extent of use of Information Technology (IT) amongst Healthcare practitioners in tertiary healthcare hospitals in Metropolitan cities. To provide improved and better healthcare services, Information Technology (IT) can be used to some extent. Data of individuals seeking Healthcare services can be recorded and stored for future use and analysis to provide better diagnosis at a faster pace. Healthcare Data relating to individuals can be moved across different Healthcare terminals quickly and accurately. However, to use IT, it is important to understand the current extent of use of IT in Healthcare units. It is also relevant to study the awareness of IT amongst Healthcare providers. It was found that the extent of use of IT by healthcare practitioners.

## General Terms

Healthcare, Information Technology, Healthcare Practitioners

## Keywords

Healthcare, Information Technology, Healthcare Practitioners, Awareness, Tertiary Healthcare

## 1. INTRODUCTION

Information Technology (IT) is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise. Several industries are associated with information technology, including computer hardware, software, electronics, semi-conductors, internet, telecom equipment, engineering, healthcare, e-commerce and computer services is used in every sector.

Healthcare plays a crucial role in society. Everyone depends on Healthcare services at various levels and to varied extent. With an ever growing population in an economically advancing country like India, it is but difficult to meet the Healthcare needs of every individual satisfactorily. Also, not every individual will be able to obtain the required

Healthcare services at the right time and an economic cost. IT plays a substantial role in providing better healthcare plans to client from all walks of life. The intersection of IT and Healthcare and Business is termed as "Health Informatics."

Health Informatics the use of Electronic Health Records (EHRs) was viewed as the most promising tool for improving

the overall quality, safety and efficiency of the health delivery system. Improve health care quality or effectiveness;

- Increase health care productivity or efficiency;
- Prevent medical errors and increase health care accuracy and procedural correctness;
- Reduce health care costs;
- Increase administrative efficiencies and healthcare work processes;
- Decrease paperwork and unproductive or idle work time;
- Extend real-time communications of health informatics among health care professionals; and
- Expand access to affordable care.

Information Technology in healthcare is primarily implemented in the areas of Health and Education, Health Research, Health Management Systems and Health Data Management Systems.

The research paper focuses on the use and awareness of IT amongst Healthcare practitioners.

## 2. AIMS AND OBJECTIVES

Study of awareness and extent of use of IT for providing substantial Healthcare services.

1. To study the level of awareness about IT in Healthcare services amongst Healthcare practitioners.
2. To assess the use of IT in Healthcare services by Healthcare practitioners.
3. To find latest IT applications and facilities available for Healthcare practitioners, if any.

## 3. REVIEW OF LITERATURE

Study conducted by Nurjahan M.I., T.A. Lim, S.W. Yeong, on Utilization Of Information Technology In Medical Education, concludes that a majority of their students surveyed (75.4%) had never used any electronic literature (e.g. MEDLINE) search [1]. Ibrahim S Bello, Fatiu A Arogundade, Abubakr A Sanusi, conducted a study on

Knowledge and Utilization of Information Technology Among Health Care Professionals and Students in IleIfe, Nigeria: A Case Study of a University Teaching Hospital and found that only 18.9% health professionals had good knowledge and utilization habits [3]. Study conducted by Bulu Maharana, Swarupanjali Biswal, N. K. Sahu on Use of Information and Communication Technology by Medical Students: A Survey of VSS Medical College, Burla, India states that the medical professionals in most of the cases use computers once in a month and only 20% use computers daily. Nearly 10% never use a computer which is quite discouraging. Although the students consider computers as an integral part of Medical education, their overall use is infrequent [5]. It has found by Praveen Kumar in the study of Application of information and communication technology (ICT) by medical students: A study of Government Medical College, Chandigarh, India, that only 12.76% of the medical students use the Internet to get information for patients [10]. Also, Canna J. Ghia, Abhishek S. Patil, Jignesh K. Ved, in their research work titled Benefits of Telemedicine and Barriers to its Effective Implementation in Rural India: A Multi-centric E- Survey have found that 48% doctors strongly agreed that telemedicine should be implemented in all hospitals with Internet facility. Also, 42% doctors agreed that Telemedicine will help to save the time and money of the patients [12].

Since the development of the computer and the evolution of the Internet, Information Technology (IT) has had a positive impact on health care delivery systems worldwide, particularly in the areas of disease control, diagnosis, patient management and teaching [19-21].

While the use of CD-ROM and interactive software packages have greatly contributed to dissemination of information among health care professionals, its use is still very limited in developing countries in Africa [22, 23]. The computer and IT offer the physician the ability to store and retrieve patient clinical and socio demographic information, laboratory results and preparation of referral notes. It also aids the preparation of discharge summaries, clinic letters and financial statements of the hospital, as well as delivery of laboratory results [24].

The Internet provides opportunities to retrieve up-to-date information on different aspects of diseases, interact with colleagues via videoconferencing, and enhance communication amongst colleagues in different continents. Free access to Medline, medical journals, textbooks and the latest information on breakthroughs in medicine also encourages learning and research [25].

Clinical informatics aims to improve patient care by the intelligent application of technology and hopes to increase the effectiveness and efficiency of care, as well as patient safety [26, 28]. Informatics can fulfill its promises in developing countries only if health care professionals are trained in basic computing skills and IT. Designing such training will necessitate an assessment of baseline knowledge and the utilization patterns of all personnel involved in health care delivery which is the major thrust of this survey.

#### 4. METHODOLOGY

The research survey was conducted at the Lokmanya Tilak Municipal Hospital and Lokmanya Tilak Municipal College, Mumbai, India. LTMH and LTMC represents one of the largest Municipal Hospital in Mumbai to deliver quality health care to people from all walks of life.

The literature review does not support sufficient data to understand the use and awareness of Information Technology amongst Healthcare Practitioners in the Indian scenario. Hence, Quantitative approach was implemented to understand the same. Survey method was used to get data. Questionnaire and Face-to-face Interviews were conducted to get appropriate information from the respondents. The department of Community Medicine and Public Health Services was contacted. The relevant sample size was calculated. Since the research is study of healthcare practitioners, respondents from different levels were selected. The sample respondents comprised of Doctors, Nurses, PG students, RMOs and Paramedical staff.

An initial consent was acquired from the dean to carry out the well designed survey. A written communication was sent to various departments so as to carry out the survey department wise. Before the start of the survey the respondents were made aware about the study and its relevance to them in their respective domains. A proper date and time was decided to conduct eth survey so as to get the desired and relevant responses.

The sample size of respondents was calculated as 380. Stratified Random sampling method was implemented to select the required respondents. The respondents comprised of Doctors, MBBS Students, Nurses, Paramedical practitioners.

A well designed pretested questionnaire was administered amongst the respondents so as to gather knowledge, about awareness and use of IT, amongst health care professionals. The Questionnaire had majorly objective responses. Out of the sample size of 380 only 277 respondents were able to submit information by answering the questionnaire. 103 respondents were unable to submit their responses due to various job responsibilities. The data submitted by the respondents was fed through Google Forms so facilitate analysis work.

#### 5. RESULT AND DISCUSSIONS

A study was conducted at Lokmanya Tilak Municipal Hospital. A view of 61 doctors was taken, to conduct this study of IT awareness amongst them through questionnaire. A total of 56 doctors (91.80%) demonstrated that they are using IT for searching information, email surfing etc. while only 17 doctors (28%) using IT for maintaining patient records electronically. It was also found that most of the doctors using IT for research work (56%) and data analysis (48%).

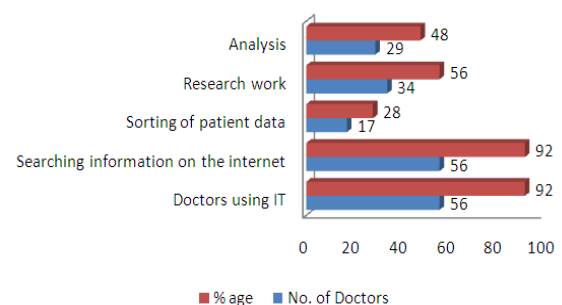
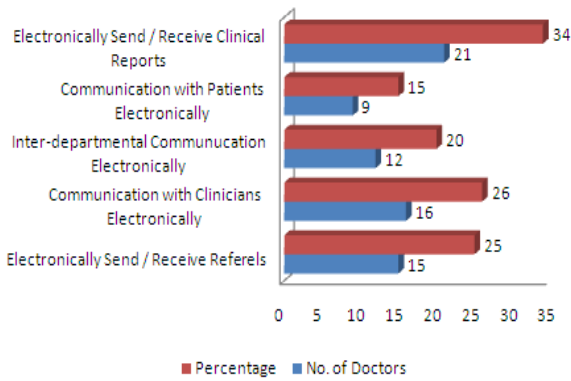


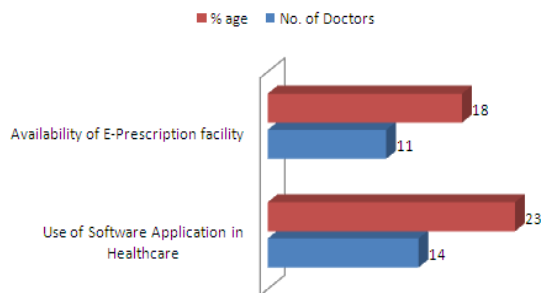
Fig 1: Use of IT by Doctors in various work areas

It has been observed from the study that very few doctors are using IT for electronic communication within and outside the hospital. The below graph shows the % wise use of IT for various electronic communication by Healthcare Practitioners.



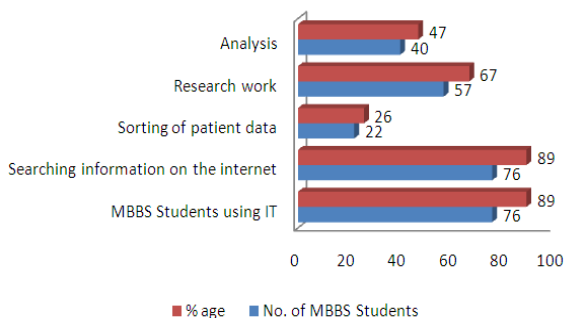
**Fig 2: Use of IT by Doctors in Healthcare Communications**

The study also states lesser use of healthcare applications in providing e-prescriptions and other generic healthcare services. The graph depicts that 23% of the doctors are using Healthcare applications amongst which only 18% doctors facilitate their patients with e-prescription facility.



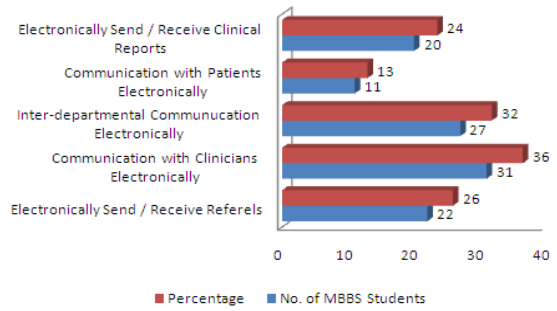
**Fig 3: Use of IT Applications in Healthcare**

The use of IT amongst MBBS Students was also found low (22%) for maintaining patient records electronically. The students are mostly using IT for searching information on the Internet (89%). 67% of the MBBS Students using IT for research works amongst which 47% of the MBBS Students using IT for analysis. The study found that the less usage of IT amongst the Students in maintaining patient records.



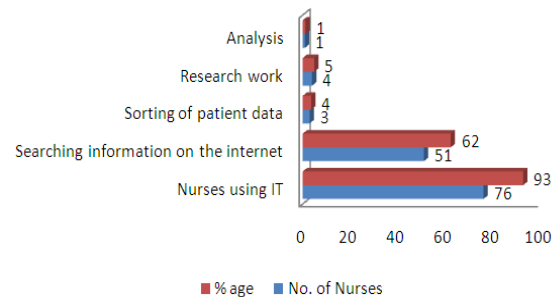
**Fig 4: Use of IT by MBBS Students in various work areas**

As shown in the Fig. 5, it has been observed that 36% students are engaged in communicating with the clinicians electronically whereas only a few of them (13%) are using IT for communication with patients. Only 24% of the MBBS Students using IT for sending and receiving clinical reports. The study found that Information Technology utilization among MBBS Students was low.



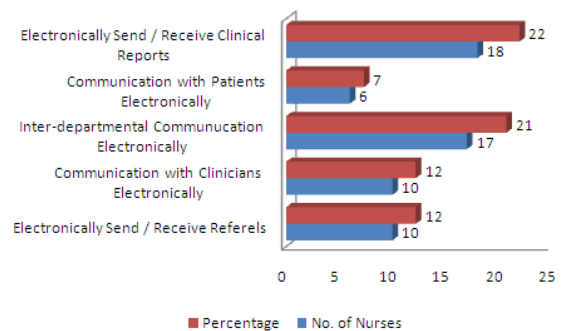
**Fig 5: Use of IT by MBBS Students in Healthcare Communications**

A view of 82 nurses was also taken in order to see IT awareness amongst them through questionnaire and it was found that 93% nurses using IT for e-mail, chatting etc. of which 62% nurses are using the same for searching information on the internet. As shown in fig. 6 it was found that the nurses are using IT only for searching information, surfing etc. but not for maintaining patient records, research work and analysis. It gives a clear idea that they never use IT in research areas in the healthcare sector.



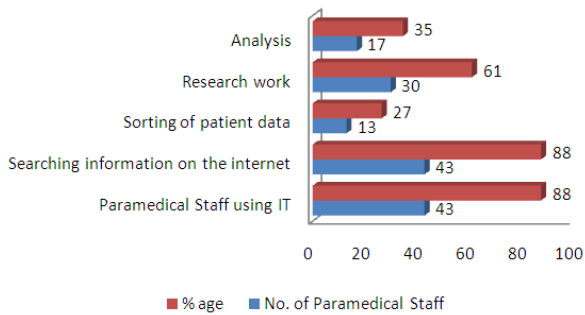
**Fig 6: Use of IT by Nurses in various work areas**

As shown in Fig. 7, it was found that the electronic communication of the nurses in communicating with clinicians, patients was found very low (Approx. 10%). Only 22% of nurses are using electronic communication for sending and receiving reports and for inter-departmental communication.



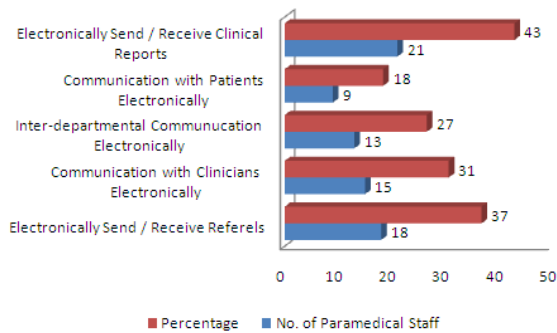
**Fig 7: Use of IT by Nurses in Healthcare Communications**

The use of Information Technology amongst the paramedical staff was also analyzed. A total of 43 paramedical staff (88%) demonstrated that they are using IT for searching information, email surfing etc. 61% of the paramedical staff using IT for research work of which 35 % of them are using IT for analysis and 27% of them are using IT for maintaining patients records electronically.



**Fig 8: Use of IT by Paramedical Staff in various work areas**

An electronic communication of the paramedical staff with clinicians and patients was also analyzed and found low. A view of 49 paramedical staff members was taken and found that approximately 30% of them are using IT for inter-departmental communication, communication with clinicians and sending/ receiving referrals electronically. 43% of the paramedical staff using IT for electronically sending/receiving clinical reports to healthcare professionals of which only 18% of them are using IT for communication with patients electronically (fig. 9).



**Fig 9: Use of IT by Paramedical Staff in Healthcare Communications**

## 6. CONCLUSION AND SUGGESTIONS

The research finding indicates the low level of use and awareness of Information Technology amongst Health care Practitioners in a tertiary Healthcare hospital in Metropolitan city like Mumbai. In order to increase the level of computer literacy and the usage of IT among Healthcare practitioners it is suggested that positive steps need to be taken to introduce and implement the usage of Information Technology in the graduate and Post graduate courses of Medicine. This includes measures such as increasing access to computers and formal inclusion of IT in the undergraduate medical curriculum.

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