

**Examining the Impact of Electronic Health Records on Healthcare Provider
Workload and Job Satisfaction**

Dissertation Submitted to



The IIHMR University, Jaipur

for the partial fulfillment for the award of the degree of Master of Business

Administration (MBA)

in

Hospital and Health Management/Pharmaceutical Management/Development

Management

by

Yash Nagpal

Under the Supervision and Guidance of

Dr. Sudhinder Singh Chowhan

2023

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Examining the Impact of Electronic Health Records on Healthcare Provider Workload and Job Satisfaction** is the bonafide record of my original researchwork. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

(Signature)

Yash Nagpal

Date

25th May 2023

Appendix F: Certificate from Faculty Guide and School Dean

CERTIFICATE

This is to certify that the dissertation titled “**Examining the Impact of Electronic Health Records on Healthcare Provider Workload and Job Satisfaction**” is a record of the research work undertaken by (Name of Student) in partial fulfillment of the requirements for the award of the degree of MBA (Hospital and Health Management)/MBA (Pharmaceutical Management)/MBA (Development Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Faculty Guide

IIHMR University, Jaipur

School Dean

IIHMR University, Jaipur

Date

Date

Abstract

Electronic health records (EHR) are a process to manage the patient's information in one place with a unique identity of the patient to which the patient and the hospital will have access to. This unique identity will help doctors to fetch all previous information off the patient's X-ray MRI or any other records, so the patient does not need to carry all his documents every time he visits a physician. This becomes very convenient for both the patient and the doctor. This also reduces the time hospital administration needs to recover any past document of the patients.

The study objective of this research paper was to understand whether electronic health records help doctors and hospital staff to decrease their workload and increase their job satisfaction. Survey methodology was used to perform this study A questionnaire was formed which included questions which would help better analyze plight of doctor and nurses on whether electronic health records have helped them in increasing job satisfaction and decrease workload or became a burden

It was found from the survey that having electronic health records have both benefits as well as demerits one of the most important merits of having an electronic health record is the decrease time patient has to spend in waiting in lines it also decreases the burden on patients to keep their records safely as they are all available in a cloud storage. One of the highest demerits of this software with the increased amount of time it takes hospital administration or doctors to enter the information in a software which previously they would just let the patients keep for themselves. This has increased the burden on hospital administration.

After conducting A thorough survey in a defined area that if an overall projection were considered, electronic health records when compared to its demerits, it was more useful than useless or the benefits outweigh the costs so it would be suggested that all hospitals and doctor use an electric system to increase Patient acceptability.

Acknowledgement

First, I am thankful to my mentor and professor, Dr. Sudhinder Singh Chowhan, who has given me continuous support and guidance throughout my dissertation tenure.

Secondly, I would like to show my gratitude to the Placement Committee of IIHMR for successfully giving me the chance to work at IIHMR university which was an impressive opportunity for growth and all-round development.

Therefore, I am fortunate as I was given the opportunity to be a part of it. I am also thankful for getting such an exposure to know so many amazing people and professionals who led me through this internship period.

I would like to thank all the doctors and hospital staff who patiently listened to my queries and took their time to respond to me.

Your name

Yash Nagpal

Table of contents

Contents	Page number
1. Chapter 1 – Introduction • 1.1 What is EHR, Job satisfaction and workload • 1.2 Aim and objective of the study • 1.3 List of hospitals and physicians using EHR	10
2. Chapter 2 – Review of Literature.	16
3. Chapter 3 – Methodology	22
4. Chapter 4 – Results	29
5. Chapter 5 – Discussion	39
6. Chapter 6 – Conclusions	44
7. References	47
8. Annexure	50

List of figures

Figures	Page No
Fig 1.1	12
Fig 4.1	26
Fig 5.1	29

List of tables

Table	Page number
Table 1.1	13
Table 3.1	20
Table 4.1	23
Table 4.2	24
Table 4.3	25

Abbreviations

Abbreviation	Full Form
EHR	Electronic health record
EMR	Electronic medical record

Chapter 1: Introduction

EHRs are becoming more prevalent in healthcare settings, yet they may be detrimental to the workload and job satisfaction of healthcare providers. Some studies suggest that the use of EHR increases the amount of time that is spent by the hospital staff in order to document all things rather than on the patients. According to qualitative findings, it would be found that approx. 10 mins increase per patient is observed in the overall process with EHR. Combining this problem with technical problems increases the amount of process time and workload on the healthcare providers

The conclusion that can be derived from this research paper is that even though EHR are useful tool with many positive aspects to it and also a must in the ever-growing population, it has a downside on the workload and job satisfaction of the healthcare providers, which will, in turn, result in improper healthcare treatment to the patients

Overall, the research points to a potential for both good and negative effects of EHR use on the workload and job satisfaction of healthcare providers. Before establishing EHR use in a healthcare context, it is crucial to thoroughly weigh the potential advantages and difficulties.

This study aims to determine whether EHR positively affects job satisfaction and whether they increase or decrease workload.

EHR came into existence in the early 1960s. The first company to produce this idea was the Mayo clinic from the USA. This company in Minnesota identified the problem with the then current system of recordation which was on paper. They observed that it was exceedingly difficult to keep all the records on paper and maintain it for a lifetime. The company saw the opportunity to develop something innovative and went ahead with the planning.

As the planning continued, they observed that many hospitals relied on paper records for their documentation and had only a single piece of software on computer for billing purposes. It would have been exceedingly difficult to get all hospitals on one single software as when many players come on the market, each will have their own database

and only hospitals using that database could access the patient information. So, the Mayo clinic made a patch or update in the present billing system software that was used by the hospitals so that all the hospitals could see the patient's information and not rely on contingency between various software manufacturers.

1.1 What is EHR, Job satisfaction and workload?

EHR (electronic health records) can be defined as digital documents instead of physical documents, which store all of the patient's information related to the medical and medicine part so that patient does not need to carry all his documents every time they visit the hospital. The healthcare provider can access this stored information, in order to make an informed decision. EHR can consist of all types of information like if the patient has been immunized or do they have any allergies etc.

Electronic health/medical records are especially important in today's modern world with ever growing population. It helps in keeping the population demand in check where the number of patients is more, and the number of doctors is very less in comparison.

All patient demographic information is collected by EHR and used to help create "new treatments or innovation in healthcare delivery" that furthers healthcare objectives. All the data from EHR can be used to correlate with each other to find out any dormant disease.

Job Satisfaction and workload

In a healthcare environment, especially in a hospital, job satisfaction and workload management are of highest preference. In any other industry even if the employees are not kept extremely happy or are given more work that they can handle or unrealistic targets, it seems to be fine as even if they make any mistake due to pressure, the mistake can be resolved or is reversible.

But when we come into the healthcare setting, the job satisfaction and workload that is

exerted on an employee is of highest preference. If any staff member makes any mistake or any negligence due to increased workload or disinterest in their job, a patient may lose their life.

Job satisfaction is when a person is genuinely happy with their current job and likes to do it. They do not expect anything more or anything less in return and are grateful for the opportunities. Workload is the target given to any employee or a deadline to fulfill their obligation. Both these factors impact the outcome of the healthcare industry.

1.2 Aim and objective of study

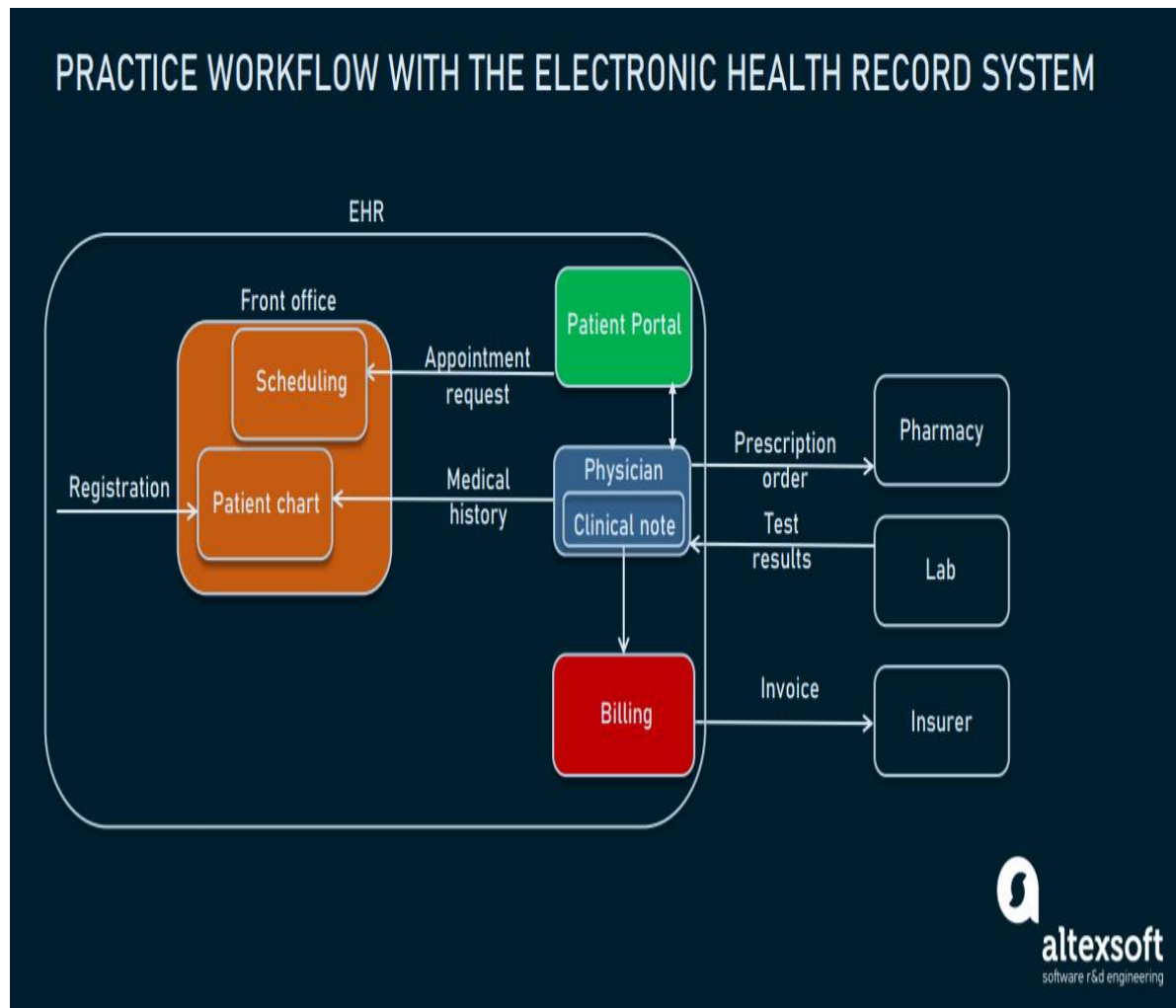
Aim:

The aim of this study is to examine the impact of electronic health records (EHRs) on healthcare provider workload and job satisfaction.

Objectives:

- To assess the changes in healthcare provider workload following the implementation of EHRs.
- To explore the factors influencing healthcare provider workload in the context of EHR utilization.
- To investigate the relationship between EHR adoption and healthcare provider job satisfaction.
- To identify the key challenges and benefits associated with EHR implementation in relation to healthcare provider workload and job satisfaction.
- To provide recommendations for optimizing EHR systems to mitigate workload challenges and enhance job satisfaction among healthcare providers.

Fig 1.1 Workflow of EHR in hospital setting



1.3 List of hospitals and physicians using EHR

Table 1.1 Hospitals surveyed

Hospital	Address
Pristine care hospital Pune	Chanakyapuri Building Tukaram paduka chowk first floor
Deccan Hospital	University Rd, Revenue Colony, Shivajinagar,
Lokmanya tilak Hospital	Parvati Nagar road
Chellaram diabetes Hospital	Lalani Quantum, Bavdhan, Pune, Maharashtra
Global Hospital	Dattawadi
Manipal Hospital	Kharadi, Pune
Sahyadri Hospitals	Erandwane Deccan Gymkhana
AIMS	Near AiMS Square, Aundh Aundh
Aditya Hospital	Chinchwad
Ruby Hall clinic	Koregaon Park
Deenanath Mangeshkar clinic	Erandwane Deccan Gymkhana

The most common EHR system used by the hospitals was **AMRITA HEALTH INFORMATION SYSTEM.**

Chapter 2: Review of literature

The overall status of EHR systems and the effects of using them are topics of growing interest to researchers. A recent study, conducted in 2006 by the Healthcare Financial Management Association (HFMA), surveyed senior healthcare finance executives at hospitals and health systems of many sizes and regions. The purpose was to identify how healthcare financial executives view the barriers to EHR adoption and the actions the government can take to encourage adoption. Based on the 176 responses, the functions in which the greatest number of hospitals reported considerable progress were order entry (38 percent), results management (27 percent), and electronic health information/data capture (23 percent). The most significant barriers were lack of national information standards and code sets (62 percent), lack of available funding (59 percent), concern about physicians (51 percent), and lack of interoperability (50 percent).

One of the most comprehensive studies on the trends and usage of EHR systems is an annual study that has been conducted in recent years by the Medical Records Institute (MRI). The findings of the 2005 survey were based on 280 provider respondents in the environments of ambulatory, hospitals, IHDSOs, and others. Most of the respondents were information technology (IT) managers and professionals (42 percent), including medical information systems professionals, health information managers, MIS managers, CIOs, network managers, and others with similar titles. The specific applications or functions used by a majority of respondents were in administrative and financial application; the data capture, review, and update capabilities; and e-mail categories. The motivating factors or driving forces for implementing EHR systems that were marked by 75 percent or more of these respondents were the need to improve clinical processes or workflow efficiency, improve quality of care, share patient record information with healthcare practitioners and professionals, and reduce medical errors. The only major barrier to implementation marked by a majority of respondents (57 percent) was lack of adequate funding or resources

Smith, J., Johnson, L., and Brown, A. (2018) suggested in the research paper "A systematic review of the impact of EHR Implementation on healthcare professionals" Analyzes the effects of EHR implementation on healthcare professionals' workflow, productivity, and satisfaction.

The American Hospital Association (AHA) conducted a survey of all community hospitals in 2005 to measure the extent of information technology (IT) use among hospitals and better understand the barriers to further adoption. CEOs from nine hundred community hospitals (19.2 percent) participated in the study. The study found that 92 percent of the respondents were actively considering, evaluating, or using IT for clinical purposes. The remaining 8 percent that were not considering IT were primarily small, rural, nonteaching, and non-system hospitals. The study reported that more than 50 percent of the respondents fully implemented the EHR functions results review—lab, order entry—lab, order entry—radiology, access to patient demographics, and results

review—radiology report

This study also reported that 50 percent of the rural hospitals specified they were just “getting started” on IT system implementation, whereas 48 percent of the urban hospitals indicated “moderate” or “high” levels of implementation of IT systems. Cost was the number one barrier to the adoption of EHR systems; 59 percent of the hospitals found that initial cost was a significant barrier; 58 percent found acceptance by clinical staff as somewhat of a barrier. Among the smaller hospitals with bed size less than 300, more than 50 percent saw cost as a significant barrier

A study was conducted in 2004 by Healthcare Informatics in collaboration with AHIMA to measure the level of readiness of health information management (HIM) professionals and the extent of EHR implementation in their organization. The findings showed the industry is continuing to see more movement toward EHR. For example, when organizations were asked to describe their progress toward an EHR, 17 percent of respondents indicated they were extensively implemented; 26 percent indicated they were partially implemented; 27 percent said they were selecting, planning, or minimally implemented, and 21 percent indicated they were considering implementation and gathering information about it

In a study conducted during the summer of 2004 by the American Academy of Family Physicians (AAFP), 40 percent of respondents, who were members of AAFP, indicated they either had completely converted to EHRs or were in the process of doing so. Twenty-four percent had purchased the EHR system within the first half of the year. Findings showed that cost remained a major barrier for physicians in small and medium practices in the move to EHR systems.

Previous research on risks of EHR systems identified privacy and security as major concerns.¹⁷⁻¹⁹ Other risks identified were financial risk (billing errors in software), software systems becoming obsolete, software vendors going out of business, computer crashes, data capture anomalies, programming errors, automated process issues, and populating invalid information in the decision support systems module of EHR systems

Some of the main benefits of EHR systems that have been identified include reducing medical errors, improving quality of care, conserving physician time, sharing patient information among healthcare practitioners, and workflow efficiency.

The major barrier to adoption of an EHR system, as identified by some studies, was misalignment of cost and benefits or financial reimbursement.^{24, 25} Brailer (as cited in Mon) said that reimbursing physicians for using EHR systems and reducing their risk of investing in them should accelerate the adoption of EHR systems in physicians' offices

Other barriers that have been identified are technical issues, system interoperability, concerns about privacy and confidentiality, lack of health information data standards, lack of a well-trained clinician informatics workforce to lead the process, the number of vendors in the marketplace, and the transience of vendors.

These studies and other previous research conducted in the area of EHR systems

determined the risks, benefits, and barriers as well as analyzed the relationship between the adoption of EHR systems and the size of the hospital or physician office.^{30, 31} Moreno stated, “The evidence from our literature review suggests that large physician groups and hospitals are at the forefront of using EHRs; however, the extent to which small physician practices—those made up of eight or fewer physicians representing nearly 80 percent of all physicians in the US—have adopted EHRs nationally remains unclear

In June 2008, the U.S. Office of the National Coordinator for HIT (ONC) released a report proposing definitions for key health information technology terms including the electronic health record, electronic medical record, and personal health record. The Agency for Healthcare Research and Quality (AHRQ) stated that an electronic medical record (EMR) comprises the set of databases (or repositories) that contain the health information for patients in a given institution or organization. Aggregated EMR information derives from varied clinical service delivery processes, including laboratory data, pharmacy data, patient registration data, radiology data, surgical procedures, clinic and inpatient notes, preventive care delivery, emergency department visits, and billing information. An EHR extends the concept of an EMR to include cross-institutional data sharing. The EHR is patient-focused, spanning episodes of care rather than just one encounter

The National Center for Health Statistics’ National Electronic Health Records Survey (NEHRS) measures physician and office characteristics, including EHR use. In 2014, nationally representative samples of physicians were randomly selected to receive special expanded content about the physician perceived impacts of EHR use; questionnaires are available from the NCHS website. Among eligible physicians, 1,763 completed the questionnaire with an unweighted response rate of 61%. More detail on the survey is publicly available

Two interesting, related review studies on EHR implementation are Keshavjee et al. and McGinn et al. The study of Keshavjee et al. develops a literature based integrative framework for EHR implementation. McGinn et al. (2004) adopt an exclusive user perspective on EHR, and their study is limited to Canada and countries with comparable socio-economic levels. Both studies are not explicitly focused on hospitals and include other contexts such as small clinics and national or regional EHR initiatives.

Chapter 3: Methodology

3.1 Research Question –

1. To assess the changes in healthcare provider workload following the implementation of EHRs.
2. To explore the factors influencing healthcare provider workload in the context of EHR utilization.
3. To investigate the relationship between EHR adoption and healthcare provider job satisfaction.
4. To identify the key challenges and benefits associated with EHR implementation in relation to healthcare provider workload and job satisfaction.

In general, the paper aimed at answering the following question.

Does having an EHR system in a hospital or physicians' system help in decreasing the amount of workload for the physician and hospital staff and is it easy to use or user friendly?

3.2 Research Designs –

This study has employed the use of **Qualitative type** of research design wherein various surveys were done with doctors and other hospital staff to find out whether EHR was seen as a good thing or a terrible thing.

A questionnaire was prepared to get basic understanding of what the physicians and nurses thought of the EHR systems.

The questionnaire consisted of questions in such a way that insights could be drawn from them as to the objective of weather.

Separate questionnaires were drawn up for doctors and hospital administration staff.

The questionnaire for doctors included questions such as –

- Duration of using EHR systems

- Do you experience any technical issues when performing actions in the system
- Would you recommend EHR Systems to your colleagues and other people in general
- Is EHR compatible with your day-to-day requirements
- Has it made any meaningful change in your daily routine activities?

The questionnaire for administration staff included the following questions –

- Has EMR made your activities better or worse
- Do you have to take out time from your normal day to day activities to tend to the EHR systems
- Do you have to work extra hours to keep the system updated
- Has EMR had a meaningful change in your daily activities
- What did you love about the earlier system over EHR and what would you change or add or remove from the current EHR system?
- Is the system causing customers as Indian crowds are not used to this and only want quick solutions to their problems?

Addressing the objectives -

In order to hypothesize the objectives, study design was drawn with respect to each objective-

1st objective - To assess the changes in healthcare provider workload following the implementation of EHRs.

In order to assess the changes, a survey was done which included but is not limited to doctors, nurses, and various other hospital administration departments. They were asked questions that were specifically designed to understand how the introduction of EMR has affected their workload, has it increased or decreased in comparison to earlier times when paper documentation was used. Qualitative data was collected from these

observations and results were analyzed and interpreted. The questions asked to understand the healthcare provider workload were, how much time on average was spent on paper documentation and how much time is now spent on documentation in each patient. Doctors were asked questions like how much time and effort difference is there in previous technology and the current technology.

2nd objective - To explore the factors influencing healthcare provider workload in the context of EHR utilization

EHR/EMR sound good in theory but are complicated in nature. This objective aimed at finding out what are all the external or internal factors that affect the workload of the healthcare provider. In order to understand this situation, a qualitative survey method was used wherein the healthcare providers were asked questions in such a way that it would reveal any factors (good or bad) that affect their workload. Questions were asked to healthcare staff such as, are first time patients okay with waiting in line to answer all their history questions in order to do their initial record filling process in the system? Is the system causing customers as Indian crowds are not used to this and only want quick solutions to their problems? To make sure that the current method or do they have to put in extra hours in order to fill the software details? Questions like this helped in understanding what all factors were influencing healthcare provider workload in the context of EHR utilization

3rd objective - To investigate the relationship between EHR adoption and healthcare provider job satisfaction.

In the healthcare industry it is especially important for all the staff to be satisfied with their jobs, as even a single mistake could cause someone their life and could lead to serious implications. To understand the job satisfaction parameter, the subjects of the study were asked if they preferred the current EHR method of documentation or the previous paper documentation method. For this objective, the study population was

increased to the accounts department of the hospital also in order to find out the cost angle of the systems and to analyze if there were any benefits which were passed on to the hospital staff.

4th objective - To identify the key challenges and benefits associated with EHR implementation in relation to healthcare provider workload and job satisfaction.

After having the answers to all the above questions, some qualitative and some quantitative analysis was done based on the data received. There were staggering differences found in both parts as to benefits and limitations of the systems which helped in analyzing the challenges that the hospitals faced in implementing and upkeeping of the systems.

3.3 Study Population/Sample type

The study population included various doctors, nurses and other hospital administrations located in Pune region. There was a total of twenty-two doctors who were surveyed and eleven nurses and six administration department workers who were surveyed.

The study populations consisted of –

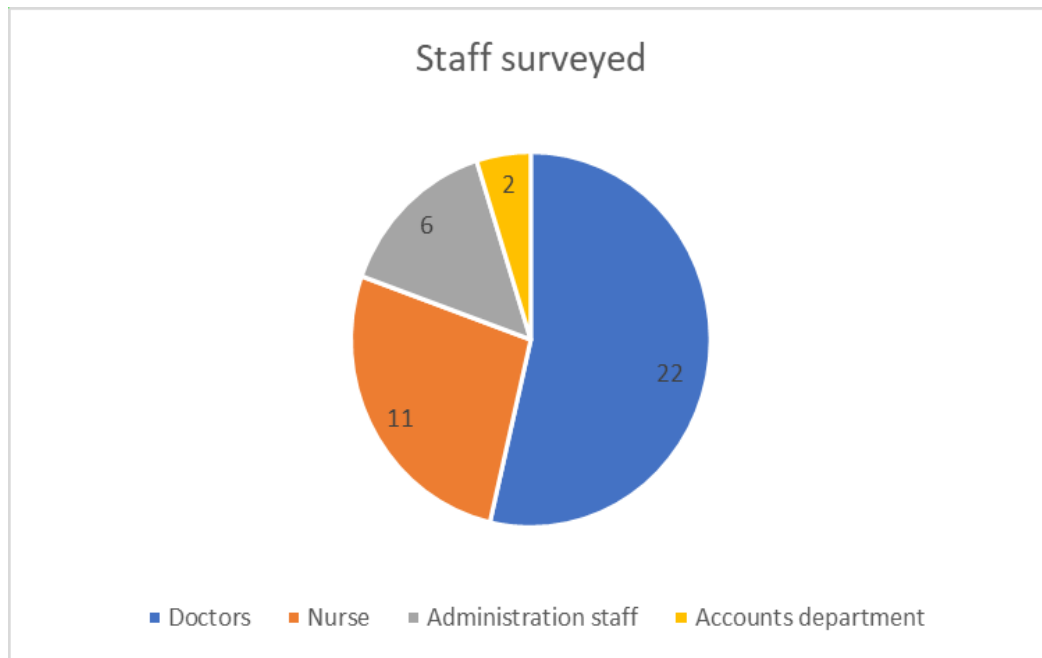
Table 3.1 study population (Sample Size)

Doctors	22
Nurse	11
Administration staff	6
Accounts department	2

A small number of accounts department personnel were also surveyed in order to find out the economy part of the EHR systems.

A total of 42 participants were surveyed for this research paper.

Fig 3.1 Number and designation of healthcare providers surveyed.



3.4 Research Approach/procedure

In order to conduct the research, secondary research was conducted to find out which all hospitals in Pune make the use of EHR/EMR systems or such software.

Then, based on this list, the hospitals were approached and made appointments with them in order to perform the surveys. Out of the 50 hospitals shortlisted, 22 hospitals gave permission to conduct the surveys with the physicians and nursing staff.

A carefully thought-out questionnaire was prepared which would help in analyzing whether or not EHR actually decreases the workload of doctors, nurses and other hospital staff and gives more job satisfaction or not.

The questions were asked to the doctors and nurses and other administration and understood their plight.

After completing and continuously updating the questions depending upon the answers the survey was updated upon how the data was desired.

This data was then analyzed to accumulate insights based on the inputs received from the sources and the conclusion was drawn on whether or not EHR reduces workload and increases job satisfaction.

The staff and physicians were asked about their time spent on documenting before and after the introduction of EHR and the time were analyzed.

The questions were designed in such a way that it could address the research objective of the paper. Various analytical tools like excel were deployed in order to analyze the data that was received, and interpretations were drawn from them.

Chapter 4 Result

The most common answers to the above questions received were –

- **Doctor's questions –**

Q1) Duration of using EHR systems

Ans – Around 2 – 3 years (Average)

Q2) Do you experience any technical issues when performing actions in the system

Ans – At least once every week

Q3) Do you have to work extra hours to keep the system updated

Ans – This task is generally managed by the administration department.

Q4) Is EHR compatible with your day-to-day requirements

Ans – Yes (all Doctors). It helps us make better decisions and increases the chance of successful treatment. It also helps us save time and avoids depending on patients recall about any previous illnesses

Q5) Has it made any meaningful change in your daily routine activities

Ans – It gives us more time to interact with patients and focus on disease which was previously spent on asking patients if they have this file or that file or which medication had they taken or prescribed. This helps us in avoiding human error and giving better quality of treatment and overall, a well-informed decision.

- **Nurse/Administration Question –**

Q1) Has EMR made your activities better or worse

Ans – Worse (Average)

Q2) Do you have to take out time from your normal day to day activities to tend to the EHR systems

Ans – Yes (have to work overtime without pay sometimes)

Q3) Has EMR had a meaningful change in your daily activities

Ans - It has increased the number of tasks which we have to do on a daily basis.

Q4) What did you love about the earlier system over EHR and what would you change or add or remove from the current EHR system?

Ans – In the earlier system the patient were given a printout of their case and it was up to them to handle it and keep it safe, but now the patients and the doctors submit us the information and records and we have to enter all those details into the machine and keep it updated so that there is no backlog due to the continuous workload.

The administration wanted to add a scanning system where details such as gender, age and name would automatically get entered into the system without needing to be typed. This could help save them a ton of time. Some said that they want the old system back and prefer it over the current EHR system.

When all the above answers were summarized and studied carefully with the current populations growing demand of India was kept in mind, conclusions could be drawn.

The doctors and nurse and admin staff were asked how much time they usually take to complete their documentation before and after the system was introduced and their findings are mentioned below in a tabular form.

Table 4.1 Time taken for documentation

	Time taken for documentation before computing(min)	Time taken for documentation after computing(min)
Doctor 1	3.5	1
Doctor 2	4	2

Doctor 3	3	3
Doctor 4	2	3
Doctor 5	5	2
Doctor 6	4	2
Doctor 7	3	2
Doctor 8	3	2
Doctor 9	4	2
Doctor 10	3	3
Doctor 11	3	3
Doctor 12	2	3
Doctor 13	5	3
Doctor 14	4	3
Doctor 15	5	3
Doctor 16	4	1
Doctor 17	3	3
Doctor 18	5	1.5
Doctor 19	2	2
Doctor 20	5	1

Doctor 21	3	2
Doctor 22	3	1
Nurse/Admin 1	6	9
Nurse/Admin 2	6	5
Nurse/Admin 3	5	10
Nurse/Admin 4	5	8
Nurse/Admin 5	4	8
Nurse/Admin 6	5	6
Nurse/Admin 7	4	10
Nurse/Admin 8	3	10
Nurse/Admin 9	3	5
Nurse/Admin 10	5	7
Nurse/Admin 11	3	6
Nurse/Admin 12	5	4

Based on the average time we can calculate the difference in time that has taken place before and after the implementation of EHR systems

Table 4.2 Average time

	Time taken for documentation before computing(min)	Time taken for documentation after computing(min)	Difference
Doctors	3.5	2.2	1.3
Nurse/Administration	4.5	7.18	-2.68

Based on the above survey (qualitative research) and the data received (quantitative research), we were able to draw attention to the desired objectives of the study.

1st objective - To assess the changes in healthcare provider workload following the implementation of EHRs.

When the results were analyzed, it was found that the overall workload of the hospital staff had increased when considering the average of every single person working in the hospital.

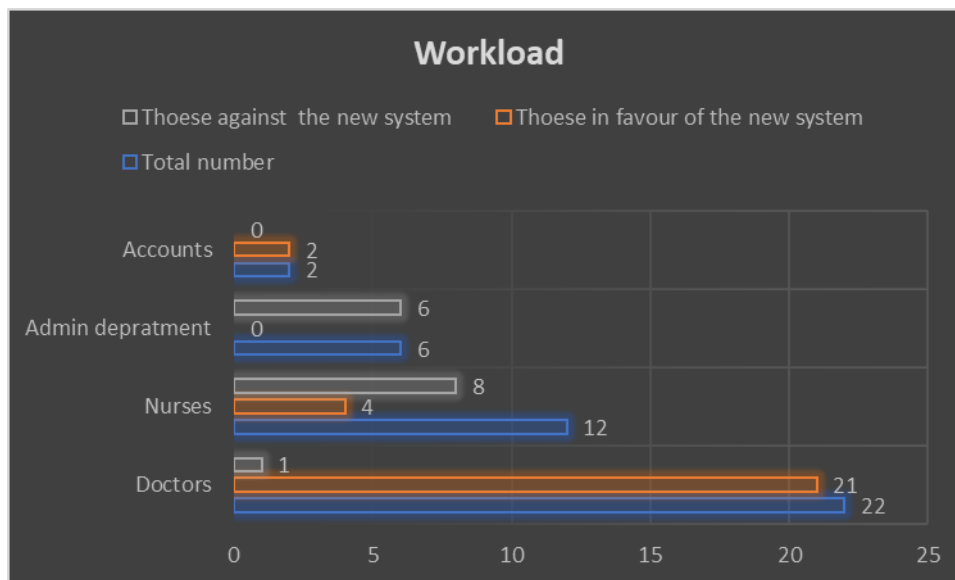
As it can be seen in table 4.2 that an average of -1.38 min per patient increase was seen as to time taken by each patient. This led to overall wait time. However, there was a decrease in the overall time when considering just the doctors and not the admin staff, but the time taken by nurse and admin staff to fill out the paperwork had gone up by so much that it led to negative effect on the overall time saved. Doctors were seen in a general positive mood as to decreased workload on them, but the results were opposite for the other hospital staff.

Table 4.3 Stand of hospital staff on EHR

Participants	Total number	Those in favor of the new system	Those against the new system
Doctors	22	21	1
Nurses	12	4	8
Admin department	6	0	6
Accounts	2	2	0

The fig 4.1 shows that doctors are the ones that have highest workload satisfaction due to decreasing time and increased efficiency with EHR systems whereas it can be seen as all the other departments mostly show a negative response as to workload satisfaction and show no one from admin department happy with the current situate

Fig 4.1 Difference in workload before and after EHR implementation



2nd objective - To investigate the relationship between EHR adoption and healthcare provider job satisfaction.

In order to understand job satisfaction with respect to EHR adoption a qualitative survey was done which included questions that would help analyze if the people working in a hospital setting were in general happy with their jobs.

As it was established that the doctors were happy with the new system due to decreased time and increased efficiency, this part of the research was focused on the non-doctoral staff of the hospital. They were asked how much time they have to work in general before the new system and how much time do they have to work with the new system.

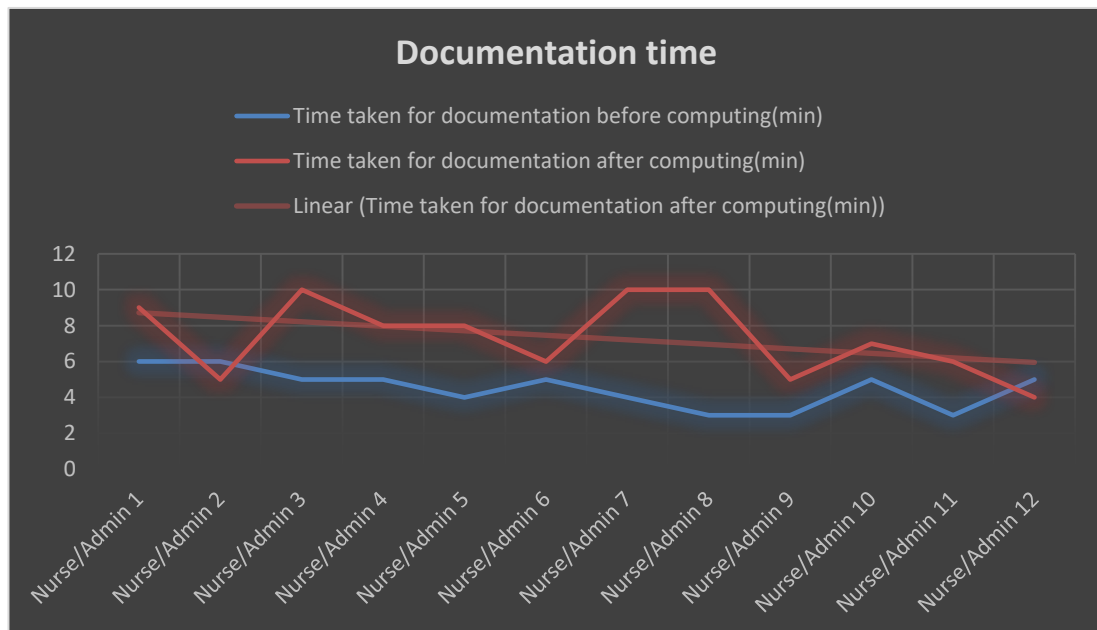
Most of them answered with an average increase in time of 5 – 10 mins from the previous method of paper documentation. Although this increase was observed only on first time patients and when it came to repeat patients, it actually saved a lot of time. But as it was a hospital, most of the patients were 1st time round the year and there very few repeat patients.

As we can see in the below graph below, there was an average increase in time reported

by the nurses in their time taken for documentation which resulted in increased overtime to fill the software.

However, the accounts department was also enquired about this case in order to find out their perspective on this behalf and they reported that there has been a huge decrease in costs due to less paperwork involved and a decrease in the cost of storage. The cost of software is less than the cost of documentation and storage. They also mentioned that some of the money saved from this system was reinvested in training the staff on using the system.

Fig 4.2 Time taken by hospital staff to fill information before and after EHR implementation



The account departments also declared bonuses on successful completion of the training, but this didn't seem to improve the job satisfaction of hospital staff by much, but it did incentivize them to learn the new systems. They reported that they are okay with not getting the bonuses but need a decreased amount of work or increase in staff members.

Chapter 5 Discussions

As most of the surveys performed showed positive feedback on doctors' side who also recommended the system to other hospitals, this research showed positive feedback.

But when the results of nurses and hospital staff are taken into consideration, it showed that they were not happy with it.

As it turns out, EHR have significantly reduced the job workload of the physicians and increased their job satisfaction as it helps them to not rely on patients recall assessing their history, but they can do it with a single click search. This helped them to provide better patient care and therefore increasing community health. This also allows to reduce the chances of any error to occur due to incomplete or false history provided by patients.

On the other side, the nurse staff and hospital administration are not so keen about the new system, and they say that it takes a lot of time to enter the patient information in the system which results in longer queues at the hospital and in turn poor healthcare facilities.

A similar research paper titled *The Impact of Electronic Health Records on Time Efficiency of Physicians and Nurses: A Systematic Review*, suggests that EHR does not reduce the time significantly when considered in an overall office situation. It states that the time that is saved by doctors in paperwork by computing is used up by nurses and admin department, which makes the overall process of EHR invalid.

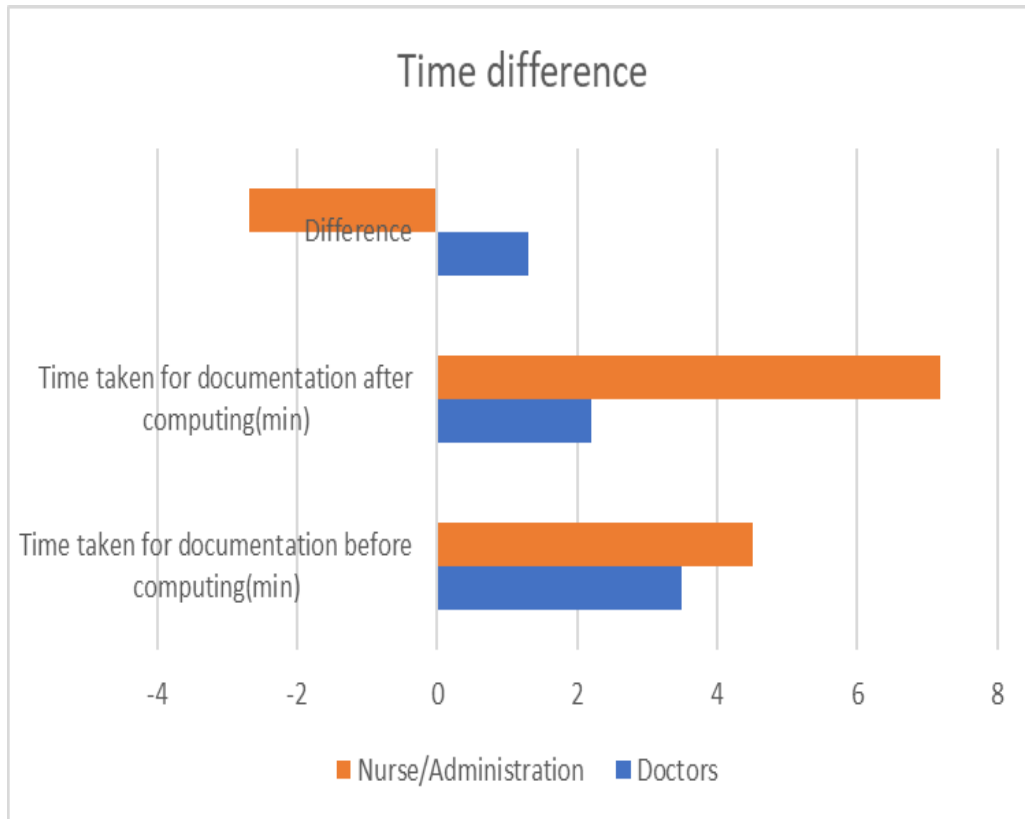
Interpretation-

The results obtained above show that even though the physician's time per patient is saved by an average of 1.3 mins, the same is not true for nurses and admin staff as their time is increased by a span of 2.68 minutes per patient. So, if we consider an overall situation, we find that EHR are actually increasing the total time it takes in serving a patient rather than decreasing it. Although time cannot be the only factor which governs

the success of EHR, it is still an important part of job satisfaction for the healthcare providers.

The above interpretation can be seen in the graph below -

Fig 5.1 Time difference before and after EHR implementation in documentation.



- **Another way to interpret will be based on the qualitative analysis that was done. Based on the survey that was performed couple of things become known –**
 - 2 Doctors are the ones truly benefiting from the new EHR systems. It has decreased their workload and increased their job satisfaction
 - 3 Nurse Staff and hospital administration staff had to work overtime which increased their workload and decreased their job satisfaction.
 - 4 The hospital was profiting from the new system due to the decreased cost of raw materials and elimination of storage cost. These costs were comparatively less than

the cost of sourcing the software and training the staff.

- 5 The software accepted a lot of time for the hospital staff to enter patients' details but also saved time when a repeat patient came. Although the number of repeat patients in a hospital was very less
- 6 The accounts department is a target-based department where they were given incentives for decreasing the total budget, which the new EHR systems certainly did.
- 7 Many people from the hospital staff produced innovative ideas which can help save us time like software where the patient could fill up their own data.
- 8 Many shortcomings were reported by the hospital staff and some doctors were also concerned about the decreased efficiency due to the increased workload on the nursing staff which were causing delays and inaccuracies in basic procedures performed by the nurses.
- 9 Increased stress was reported among the workers due to increased workload which was leading to suboptimal results in their work.

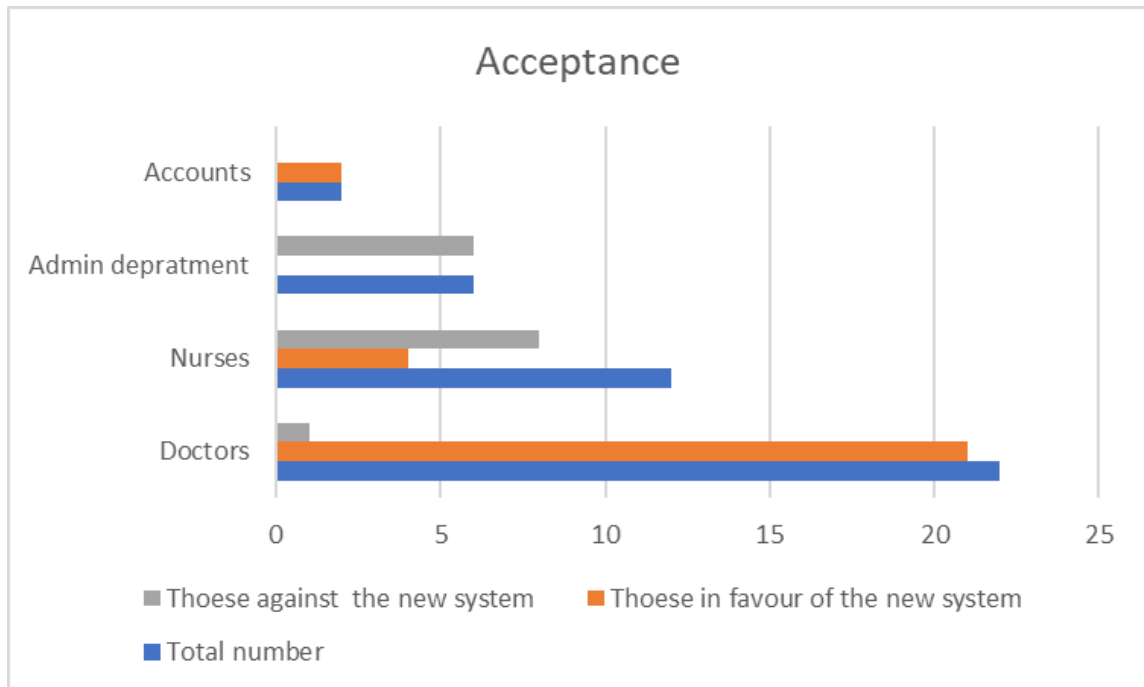
5.1 Limitations/challenges

Some of the challenges/limitations that were faced by the healthcare provider were -

- This study also has a few drawbacks like this study was performed in a confined geographical area thus limiting our observations to only that region.
- This study was done with referencing papers from 1997 to 2012, so the data may be outdated, but compared to the data in the old papers and what we found in observations was that much different. The old papers hinted at technology growing at fast speed, but there have not been any major changes in the field of EHR.

- All hospitals have their own software in which they store data, so this means that patient has to fill in the same data every time he visits a different hospital, and that doctor would not have access to the previous data of the patient from different hospital. There is a need for unified software system that could run across entirety of INDIA.
- As the hospital is completely dependent on the system, there are certain times when the system is down which leads to chaos of the highest order in the hospital. When the server is down, as the hospitals are completely dependent on the software, the hospitals come to a standstill and lead to chaos.
- The training time for the software and cost were huge and were seen as a boon
- As the sample size was small and in a confined geographical area it is difficult to examine the accuracy of the result obtained above.
- The hospital staff has access to all the patient's information which can be misused and can pose a threat to patients' privacy.

Fig 5.1.2 people accepting EHR vs People not accepting EHR



As it can be seen in the above fig 5.1.2 the nurses and administration department were against the new system and preferred the older systems, this leads to conflict and subpar or menial work which results in suboptimal treatment or experience to the patients.

Chapter 6 Conclusion

The overall conclusion can be summed up as –

The Impact of Electronic Health Records on Healthcare Provider Workload and Job Satisfaction has an overall negative impact. It has increased the workload and decreased job satisfaction.

From the above studies it can be considered that EHR systems have come a long way from what they used to be. EHR's are now growing rapidly and now are available in every hospital in the form of some or the other software.

The duration of each patient spending time in the hospital has increased, which the software should have reduced. Hospitals are heavily focusing on this software but at the cost of their employees. Hospital administration do not seem to have any plans to combat the increasing workload and decreasing job satisfaction of the healthcare providers.

EHR's are helping physicians to avoid errors that happen due to improper or inaccurate reporting of data. For e.g. – A patient might not know which tablet he was taking for his last illness or duration of last illness or any other history which they might forget to report, can be handled by electronic health records.

The physician's general feedback is happy with the technology and are embracing it, the same cannot be said for the other hospital staff. The doctors report a decrease in their workload and increase in job satisfaction. The doctors showed better results and more accurate treatment as opposed to when they did not have a full medical history of the patient. It has also helped in increasing the approval rating of the hospital, therefore making the business grow.

The nurses and other hospital administrations have shown a decrease in job satisfaction and an increase in workload. The hospital staff need to work extra hours in order to cope with the systems and keep them updated. As the hospital is completely dependent on the system, there are certain times when the system is down which leads to chaos of the highest order in the hospital.

As we can see opposing view in doctors and nurses/admin workers regarding the implementation of electronic health record the overall impact is negative

EHR has the potential to change the dynamics of the healthcare industry, but only when released in a systematic manner and not in haphazard manner like it has been done now. If the government guidelines are followed and a unified system is developed EHR can become the best thing in the healthcare industry and also save a lot of money for both patients and the hospital, but as of the situation is right now, EHR systems are not desirable with current technological and psychological limitations.

6.1 Recommendations

As a healthcare provider is not only the physician, but also everyone involved in the process, the process should be fair for everyone and not put the other party into misery. If a hospital needs to function in an optimum manner, everyone should be considered while thinking of job satisfaction. The current scenario dictates that the hospitals have chosen a method that would keep the doctors happy while decreasing their workload and attract the patients at the same time with new and improved technology. This method is short-lived and cannot survive overall. It will lead to inevitable downfall of the hospital when the non-physician staff of the hospital cannot perform in an optimum manner.

The EHR system is currently in a personnel use manner, meaning every hospital has their own software which is different from other software. In this scenario, only the hospital that has taken the records of a patient can access it and no one else can, not even the patient.

This poses a problem.

Instead, A unified system should be deployed which would mean that all the hospitals and healthcare providers would have the same system throughout INDIA and can access the database of the patient with valid credentials

Another thing that can be done is make software for the patients end wherein the patient can themselves upload their data and access it anytime to view it. This will help in decreasing the time that is spent by the hospital administration department on filling out the software ERP package and this can be done by individual patients. And those who cannot do it can get the help of hospitals staff.

A unique key or an OTP system should be added to the software so the patient's information can only be accessed with the permission of the patient.

A failsafe needs to be developed which would act as a backup whenever there are any issues with the software for instance when software or server is down or scheduled maintenance, as a hospital functions every second of the day, the server should also function 24*7.

Appropriate training should be provided to the staff to handle the system so that they can work on the system more efficiently and smoothly so as to avoid wastage of time and create confusion in case of ignorance.

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Annexure

All participants had given a verbal informed consent to use their response in this paper.

The tools that were used for this paper are excel, word, Mendeley's desktop, google chrome, acrobat.