

Physicians' Perspective for Implementation of Electronic Medical Records at Abeer Family Medical Center

By

Huzefa Wahid

*Dissertation submitted in partial fulfillment of the requirements of the degree
MBA Hospital and Health Management*

Academic year, 2017-2019



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TO WHOMSOEVER MAY CONCERN

This is to certify that **Ms. Huzefa Wahid**, student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at **Abeer Family Medical Center, Calicut** from **6th Feb to 6th May 2019**.

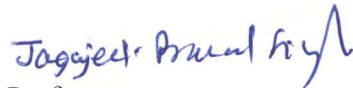
The Candidate has successfully carried out the study assigned to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all his future endeavors.

A handwritten signature in blue ink, appearing to read 'Dean'.

Dean, Academics and Student Affairs
The IIHMR University, Jaipur

A handwritten signature in blue ink, appearing to read 'Jagjeet Prasad Singh'.

Professor
The IIHMR University, Jaipur

The certificate is awarded to

Ms. Huzefa Wahid

In recognition of having successfully completed her
Internship in the department of

Operations

and has successfully completed her Project on

**“PHYSICIANS’ PERCEPTION FOR IMPLEMENTATION OF ELECTRONIC
MEDICAL RECORDS”**

Date:06.02.2019 To 06.05.2019

Organisation: ABEER FAMILY MEDICAL CENTER,CALICUT

She comes across as a committed, sincere & diligent person who has a
strong drive and zeal for learning

We wish her all the best for future endeavours

For Abeer Family Medical Center



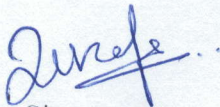
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Executive HR

THE IIMMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled PHYSICIANS' PERSPECTIVE
FOR IMPLEMENTATION OF ELECTRONIC MEDICAL RECORDS
AT ABEER FAMILY MEDICAL CENTER and submitted by (Name) Ms. HUZEFA
WAHID Enrollment No. 576
under the supervision of DR. JAGAJEET PRASAD SINGH
for award of MBA in Hospital and Health in Health and Hospitals of the University carried
out during the period from 6-2-19 to 6-5-19 embodies my
original work and has not formed the basis for the award of any degree, diploma associate
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ABSTRACT

KEY WORDS: EMR, physicians, implementation, perception, adoption, organizational system, hospitals, polyclinics

BACKGROUND:

Despite the numerous purported benefits of Electronic Medical Records (EMR), medical practices have been extremely reluctant to embrace the technology. One of the barriers believed to be responsible for the slow adoption of EMR technology is resistance by many physicians who are not convinced of the usefulness of EMR systems. The same instances were seen in the study setting where the level of usage of EMR was very low and the physicians were quite unhappy with the choice of the EMR system (Mediware) that the organization is providing. This study aims to identify the reasons behind such resistance, if any, in the study setting and provide suggestions to change such perception among the physicians.

OBJECTIVES:

1. To understand different parts of the hospital functioning related to EMR with respect to entire process flow of the complete cycle of a patient
2. To determine the physicians' perception about electronic medical record system
3. To identify key barriers to physicians use of EMRs system
4. To suggest policy interventions to overcome these barriers based on the results

METHODOLOGY:

STUDY DESIGN: Observational Cross sectional

SETTING: Al Abeer Family Medical Centre, Calicut

STUDY POPULATION: Physicians

STUDY TOOL: A structured questionnaire consisting of 16 questions and in-depth interviews

DURATION OF STUDY: Feb 2019- April 2019

SAMPLE SIZE:

1. 14 Physicians: All the physicians of the medical center were asked to fill the questionnaire
2. 150 patients mapped using purposive sampling for identifying time taken to complete a whole process or visit. Since this process was conducted for 17 days and average of 9 patients were tracked daily.

RESULTS:

The study found that physicians are willing to use the EMR system of the organization but only a few of them use it to write online prescriptions. They believe that EMR helps in increasing efficiency and brings quality in improvement of care but in the organization, the EMR system is serving better for billing process and documentation. Also, physicians feel

that they are not much encouraged to use EMR and neither are majority of them satisfied with the current software and thus suggest that changes are made to make it more useful.

CONCLUSION:

The reasons behind non usage of the current EMR system were found to be that the features included in the online system did not consist of what the physicians really want. Therefore, a pre developed pro forma is suggested. Also, physicians believe that if they spend too much time on writing prescriptions on EMR then they won't be able to spend much time on their patients which may dissatisfy them since patient care is of utmost priority to them and thus a medical transcriptionist should be appointed.

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I would like to express my gratitude towards my loving parents for their constant motivation and encouragement which helped me in completion of this project.

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Huzefa Wahid

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LIST OF ABBREVIATIONS

AFMC- Abeer Family Medical Center

EMR- Electronic Medical Records

MT- Medical Transcriptionist

HIT- Health Information Technology

HIMSS- Healthcare Information and Management Systems Society

ICT- Information and communication technology

PTS- Patient Tracker System

EPR- Electronic Patient Records

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INTRODUCTION

Electronic medical records (EMRs) are continuing to evolve as a technology for use in medical practice^[1]. It is the tool chosen to facilitate the process of patient care. While it does take slightly longer to document certain parts of the patients' records electronically, the realization is apparent that a large amount of both physician and staff time is saved to perform the myriad of daily tasks with the help of an EMR system.

The electronic medical record (EMR) is an enabling technology that allows physician practices to pursue more powerful quality improvement programs than is possible with paper-based records. By virtue of the gained efficiency, it is affordable for a physician to interact a little slower than with a pure transcription system, especially since the documentation is so thorough and complete. However, achieving quality improvement through EMR use is neither low-cost nor easy^[2].

If we talk about the status of EMR adoption in India, despite progress in other areas, use of Information Technology in healthcare services, outpatient or inpatient hospital settings in India is significantly limited. Study done by Healthcare Information and Management Systems Society (HIMSS), reports use of information and communication technology (ICT) in healthcare in India is lower than most other countries^[3].

As the first and foremost expectation from an EMR for physicians remain documenting their findings in patient notes and to be able to save these, recall these, and search them when needed^[3], in this study, we go in steps to understand different parts of the hospital functioning related to EMR. Firstly, the entire process flow of the complete cycle of a patient is taken up, which is right from where the patient arrives in the hospital, completes the consultation process and leaves. We track the time to identify if there any hindrances in this whole process and if this is causing any negative perception in the minds of the physicians. Basically, we assess whether EMR is helping physicians in yielding better results. Process flow is the basis of the whole study since upon that questionnaire is developed which is filled up by the medical staff of the hospital.

To conclude, we identified key barriers to physicians' use of EMRs and also, feedback taken by the physicians to suggest policy interventions to overcome these barriers and change the perception for the EMR among the physicians.

LITERATURE REVIEW

Keywords: EMR, physicians, workflow, implementation, perception, adoption, organizational system, hospitals, polyclinics

David M. Smith in his study 'A physician's perspective: deploying the EMR' in 2002, points out the fact that even a single practitioner can successfully implement EMR and integrate it into his/her practice. The possibilities of improving practice through this tool are many, and the single key is to know those clinical processes that define the regular practice. There is no doubt that an electronic medical record requires dedicated attention, staffing, and commitment during the preparation and actual implementation phases but if followed dedicatedly it can reap fruitful results^[4].

'Resistance to Electronic Medical Records: A Barrier to Improved Quality of Care', a study conducted by David B. Meinart in 2005 identified barriers to widespread adoption to EMRs associated with physicians but by systematically. examining their perception, a healthcare organization can accelerate the rate of adoption and utilization. Through this, the advantages of EMR like documentation, patient education, formulary decision making, graphical display of results and reduced redundancy would be achieved^[5].

Albert Boonstra et al realized in their study 'Barriers to the acceptance of electronic medical records by physicians from systematic review to taxonomy and interventions' in 2010 that the process of EMR implementation should be treated as a change project, and led by implementers or change managers, in medical practices. The quality of change management plays an important role in the success of EMR implementation^[6].

Joan S. et al in the research 'Principles for a successful computerized physician order entry implementation' of 2003 reports that EMR is beneficial and implementation in large numbers of hospitals is inevitable. The challenge is to anticipate difficulties, to implement smoothly, and to control the organizational upheaval as the organization transforms itself. Successful implementation is possible, but only if the complexity is recognized and skillfully managed^[7].

Robert H Miller et al in their study 'Physicians' Use of Electronic Medical Records: Barriers and Solutions' in 2003 clarifies that the EMR is an enabling technology for physician practices to pursue quality improvement in potentially powerful ways. Our research finds, however, that systematic quality improvement using EMRs is neither low-cost nor easy. There is no simple solution to accelerating EMR adoption and use for quality improvement. Given the multifaceted nature of the barriers, a range of policy interventions is needed to spur successful EMR-driven quality improvement. These policy interventions center on improving data exchange among health care entities, providing financial rewards for quality improvement, and providing work/practice support. This package of policy interventions, in combination with ongoing trends, should hasten adoption of EMRs and their use for quality improvement in ambulatory care^[2].

BACKGROUND

Despite the numerous purported benefits of Electronic Medical Records (EMR), medical practices have been extremely reluctant to embrace the technology. One of the barriers believed to be responsible for the slow adoption of EMR technology is resistance by many physicians who are not convinced of the usefulness of EMR systems^[5]. The same instances were seen in the study setting where the level of usage of EMR was very low and the physicians were quite unhappy with the choice of the EMR system (Mediware) that the organization is providing.

This study aims to identify the reasons behind such resistance, if any, in the study setting and provide suggestions to change such perception among the physicians.

OBJECTIVES

1. To understand different parts of the hospital functioning related to EMR with respect to entire process flow of the complete cycle of a patient
2. To determine the physicians' perception about electronic medical record system
3. To identify key barriers to physicians use of EMRs system
4. To suggest policy interventions to overcome these barriers based on the results

MATERIAL AND METHODS

STUDY DESIGN: In this study we want to know and understand the physicians' perception at a given point of time which is the reason why, Observational Cross sectional is chosen to address the research study.

SETTING: The study setting is Al Abeer Family Medical Centre, Calicut as it is the placement organization and the project work was chosen after a month of close inspection and observation.

STUDY POPULATION: Physicians

STUDY TOOL: A structured questionnaire consisting of 16 questions was used to enquire physicians covering a range of certain areas and in-depth interviews were also conducted with them which also included interview with the Medical Superintendent.

DURATION OF STUDY: Feb 2019- April 2019

SAMPLE SIZE:

3. 14 Physicians: All the physicians of the medical center were asked to fill the questionnaire

4. 150 patients mapped using purposive sampling for identifying time taken to complete a whole process or visit. Since this process was conducted for 17 days and average of 9 patients were tracked daily.

RESULTS

PROCESS FLOW OF PATIENT CYCLE AT THE MEDICAL CENTER

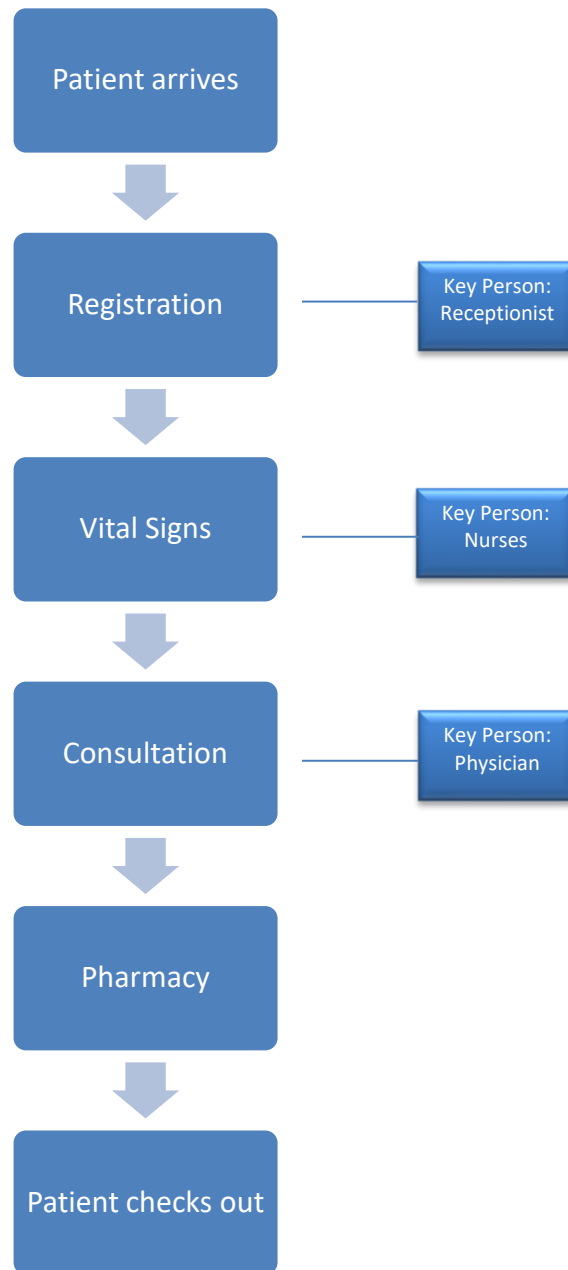


FIG. 1 Flow chart showing patient cycle at the medical center

The process for a patient starts right from when he enters the medical center and goes to the reception for the purpose of billing. At the reception, the receptionist asks for the registration details of the patient and takes a print out of the billing slip. The patient is required to take this slip and move to the next desk where the nursing staff records his/her vitals (BP, height and weight). Next, the patient waits for his/her consultation visit to the

specific physician. After the consultation is completed, patient purchases the medicines prescribed to him/her from the pharmacy store and hence, the patient cycle is completed.

ANALYSIS AND INTERPRETATION OF PROCESS MAPPING

Billing	Vitals	Waiting	Consultation	Pharmacy billing	Overall cycle
00:07	00:05	00:34	00:13	00:12	01:14

TABLE 1. Average TAT for various heads in patient flow process

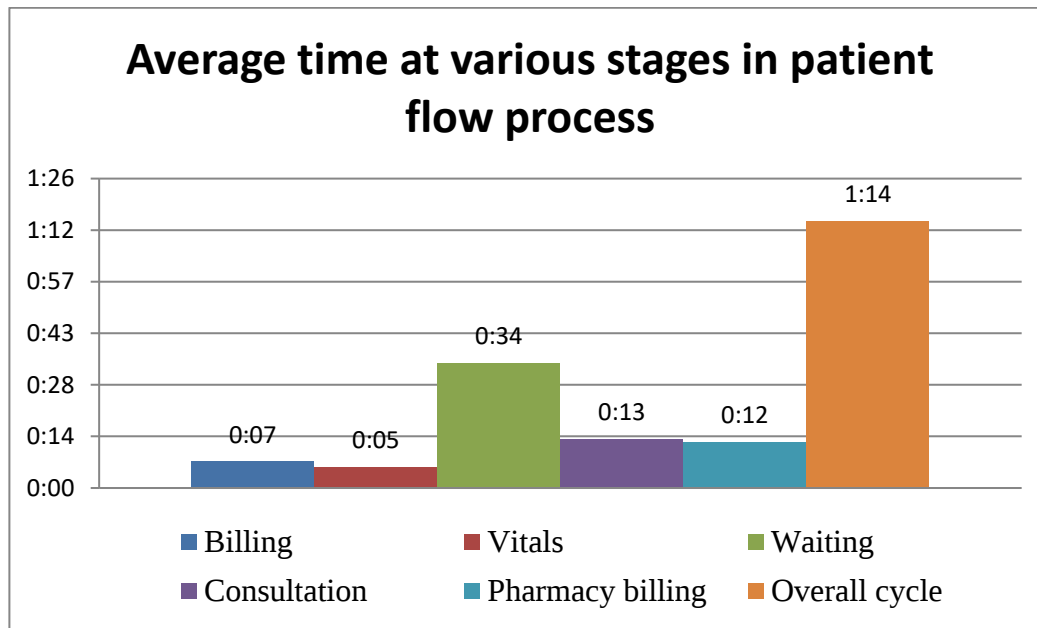


FIG. 2 Graphical representation of average time

The above table and graph shows the average time that is being taken to complete different parts of the patient flow process which include billing time, vitals registering time, waiting time, consultation time and pharmacy billing time as well as the overall final time taken to complete a process.

Billing time:

The average time that a patient is spending at the registration desk is 7 minutes. The reasons behind delay sometimes stood out to be billing software failure, patient traffic at the desk and unavailability of appointed staff.

Vitals registering time:

The average time being taken to record the vitals of the patient was 5 minutes which is appropriate. However, sometimes a patient would have to wait when the nursing staff is not available at this desk.

Waiting time:

The average waiting time was huge with 34 minutes. Reasons behind such a number were many including that there is no appointment system for 13 physicians, long consultation time taken by physicians, late arrival than fixed time by physicians, patient traffic and physicians unavailable in between for some time.

Consultation time:

The average time for consultation was 13 minutes which varied from doctor to doctor.

Pharmacy billing time:

The pharmacy staff took an average of 12 minutes for completing a patient/s pharmacy purchase. This delay was mainly because of the fact that there are only two pharmacists appointed at the pharmacy store.

PROBLEMS IDENTIFIED

1. The waiting time for patients is 34 minutes which is more than standard average waiting time of 22 minutes according to Vitals' annual Physician Wait Time Report^[8]
2. Billing software faces technical problems which increases the billing time
3. There is less number of receptionists available between the time slots of 8:00 am – 9:30 am
4. Nursing staff is sometimes unavailable at the vitals recording desk
5. Appointment system is available only for one out of 14 physicians
6. There is a problem of understaffing at the pharmacy store

ANALYSIS AND INTERPRETATION OF QUESTIONNAIRE

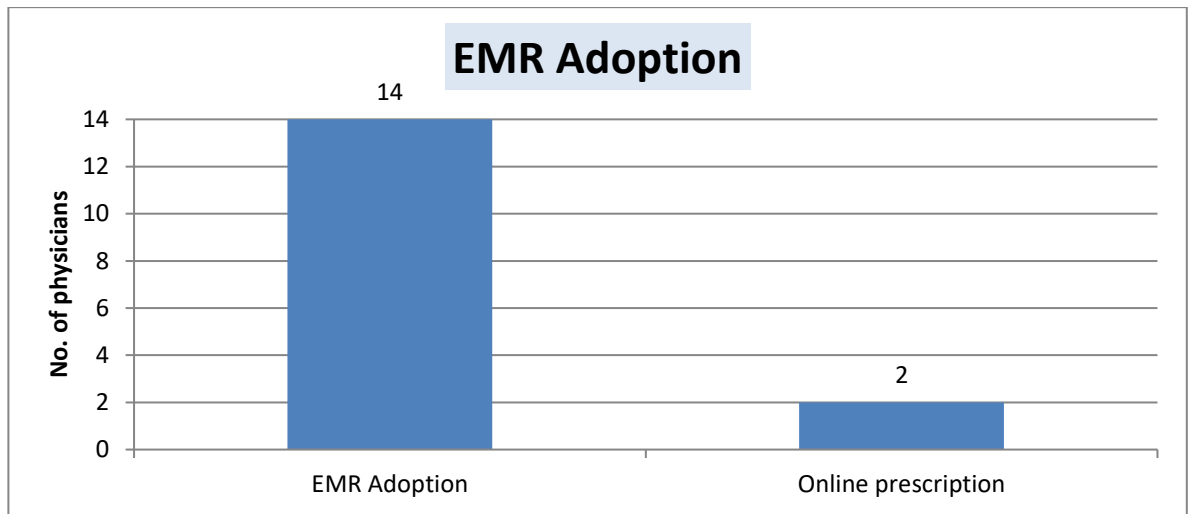


FIG. 3 EMR Adoption

The above graph shows that all the 14 physicians use Mediware to check vitals and have access to patient records but only 2 of them use it for writing online prescription.

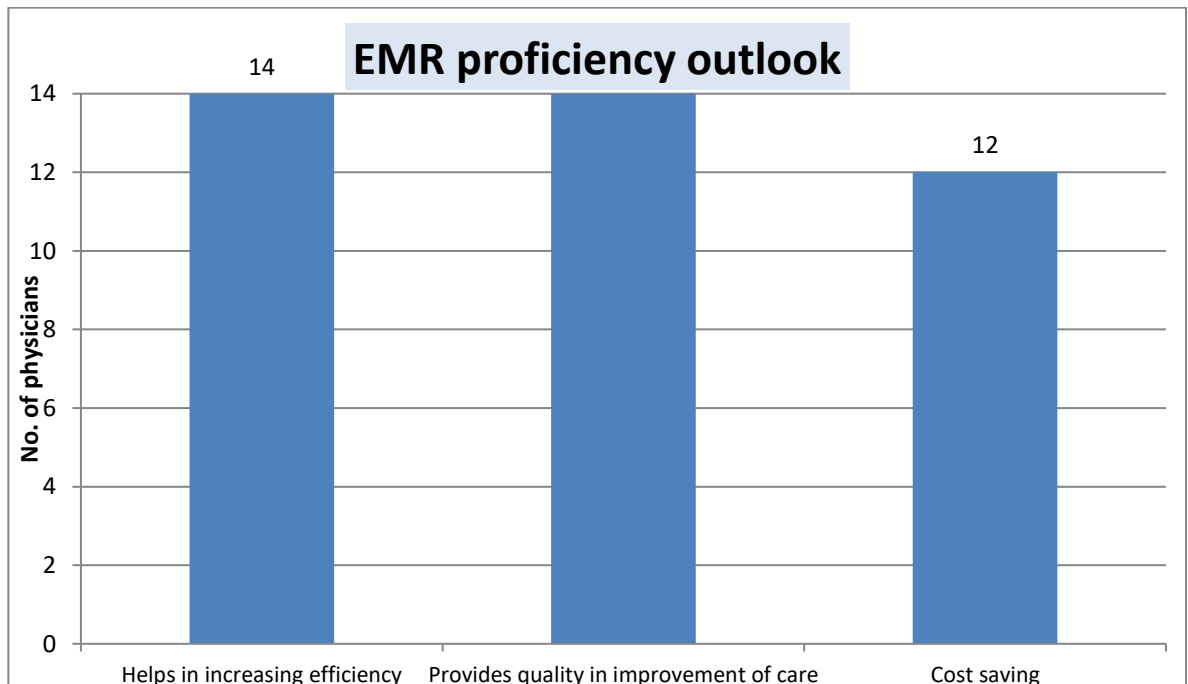


FIG. 4 Perceived benefits of EMR

The study population believes that EMR helps in increasing efficiency and that it provides quality in improvement of care. 12 out of 14 physicians believe it is cost saving as well.

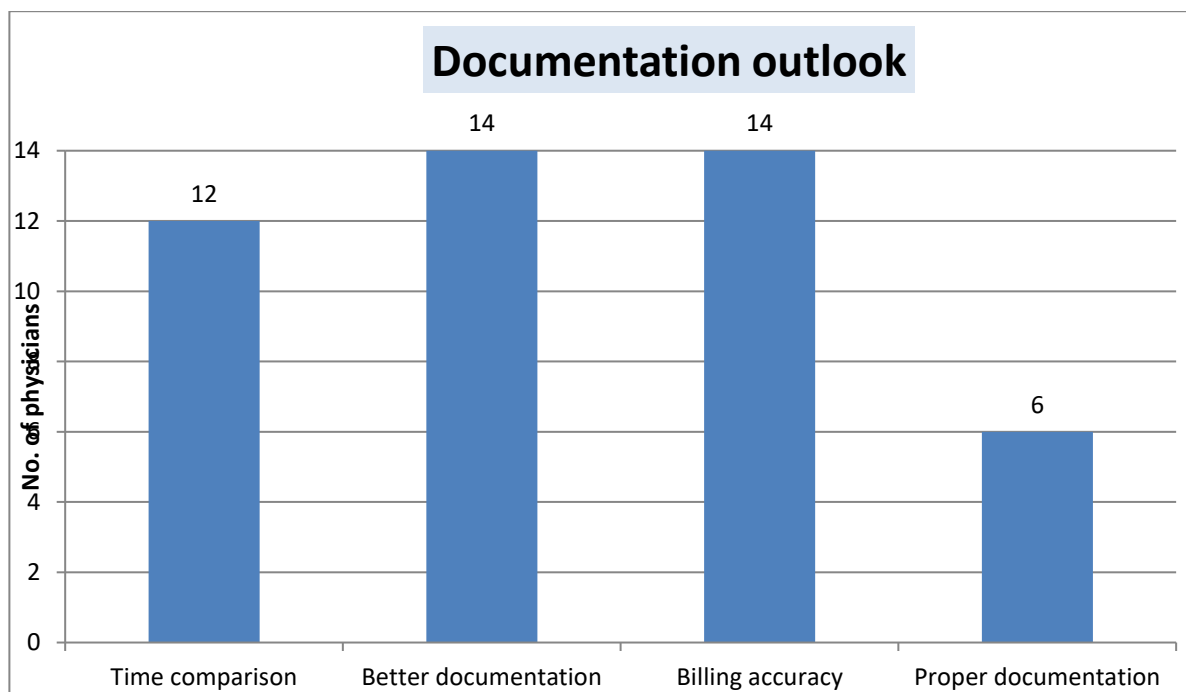


FIG. 5 EMR Documentation outlook

All the physicians are of the view that Mediware is better for billing documentation than clinical documentation and billing is more accurate and complete with the help of the software. Also, 12 and 6 physicians think that EMR documentation takes less time than former documentation and Mediware helps in the process, respectively.

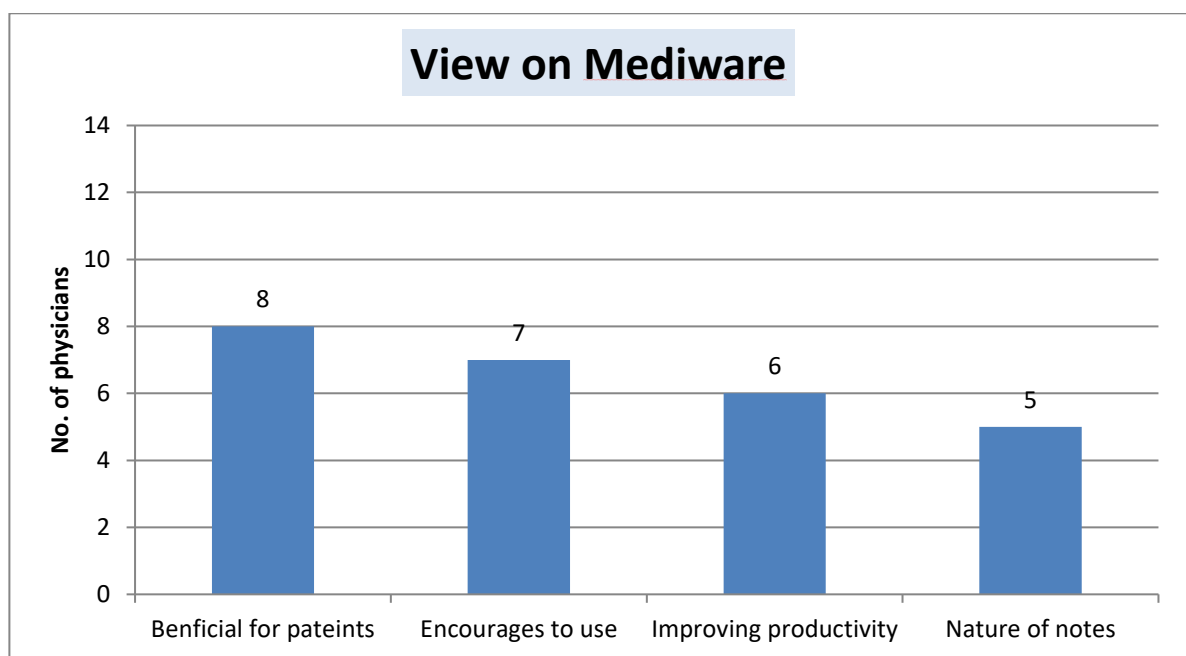


FIG. 6 View on organization software (Mediware)

8 physicians feel that Mediware is aiding help to the patients. However, only 7 physicians believe that the organization encourages them to use their EMR system and 6 believe that it is helping in improving productivity. Also, only 5 physicians believe that Mediware notes are accurate.

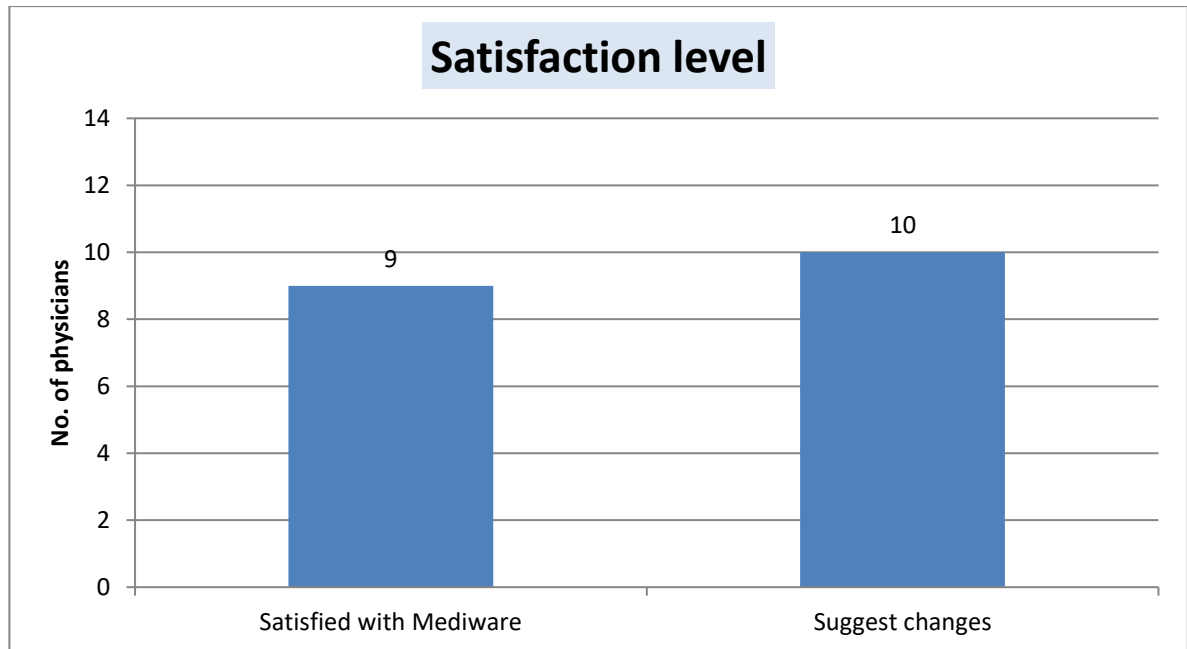


FIG. 7 Satisfaction level and suggestion regarding changes

The above graph shows that 9 physicians out of 14 are satisfied with the choice of EMR that their organization provides and majority of them think that changes should be made in Mediware to make it more beneficial.

Ranking questions:

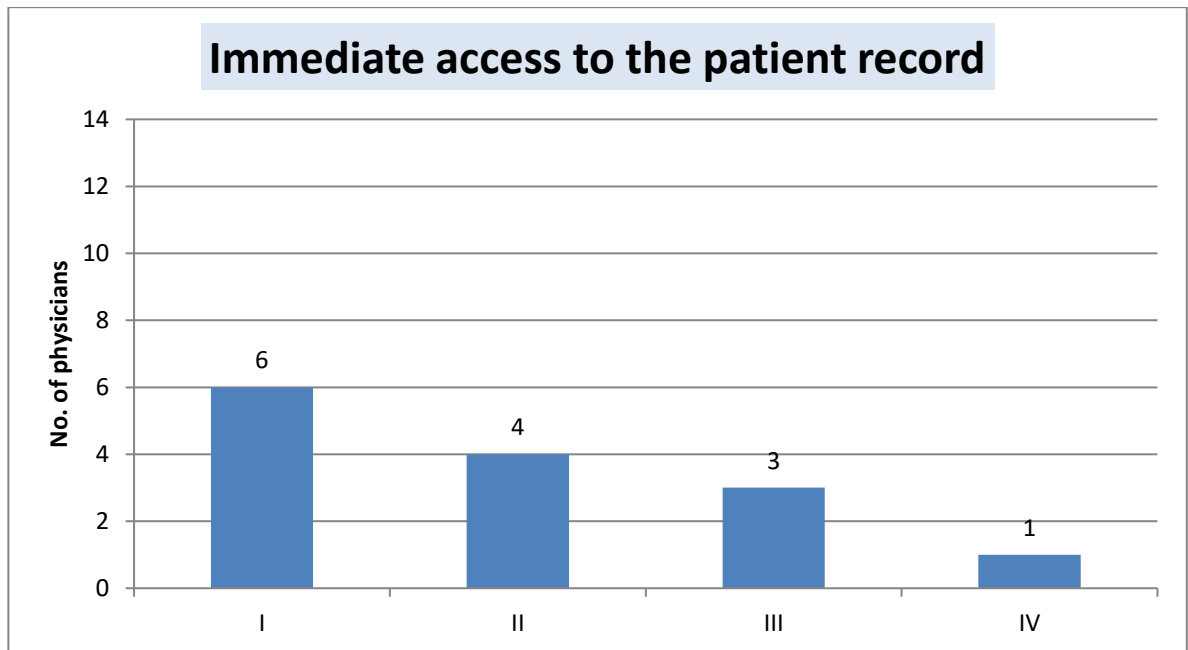


FIG. 8 Ranking between I to IV

Six physicians have ranked immediate access to the patient record as the most important. Rest, four have given it second rank, three as third and only one has given this feature as fourth rank.

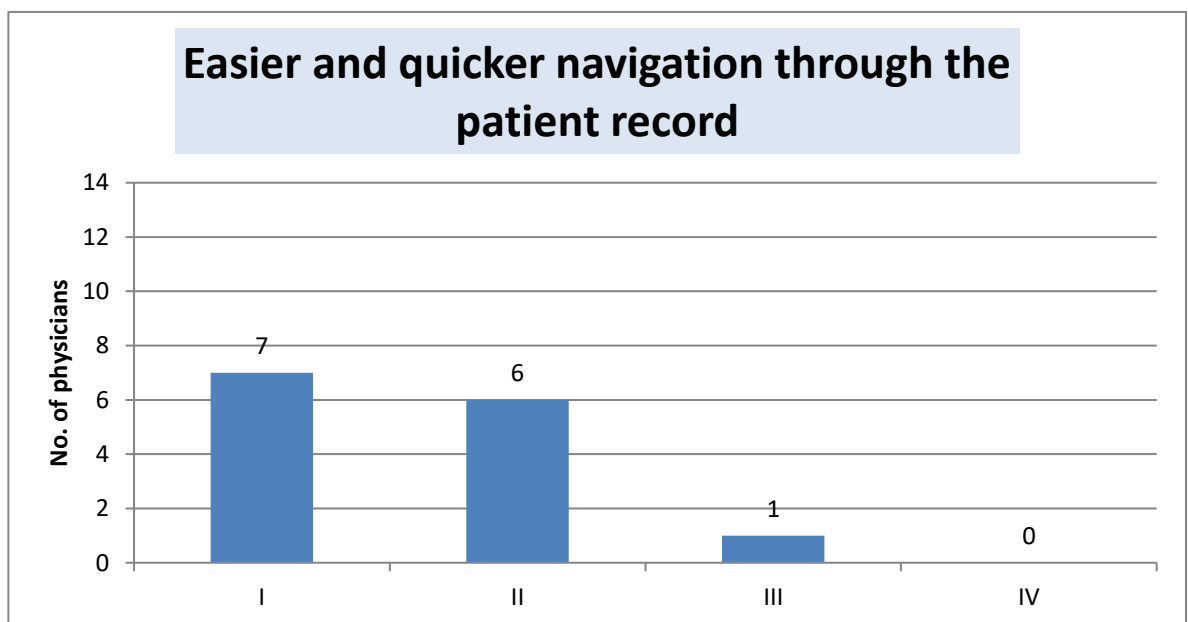


FIG. 9 Ranking between I to IV

Seven physicians have ranked easier and quicker navigation through the patient record as the most important. Rest, six have given it second rank, only one as third and none one as fourth rank.

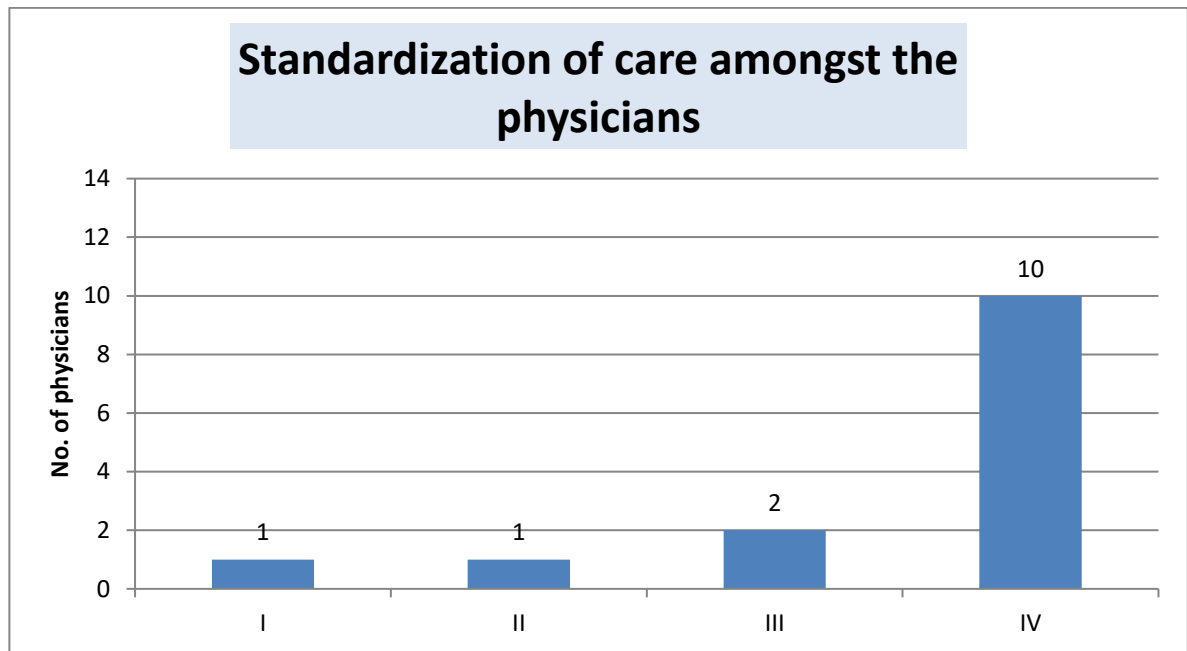


FIG. 10 Ranking between I to IV

Only one physician has given standardization of care amongst the physicians as the most important. One has ranked it as second, two as third and ten think that it is the least important.

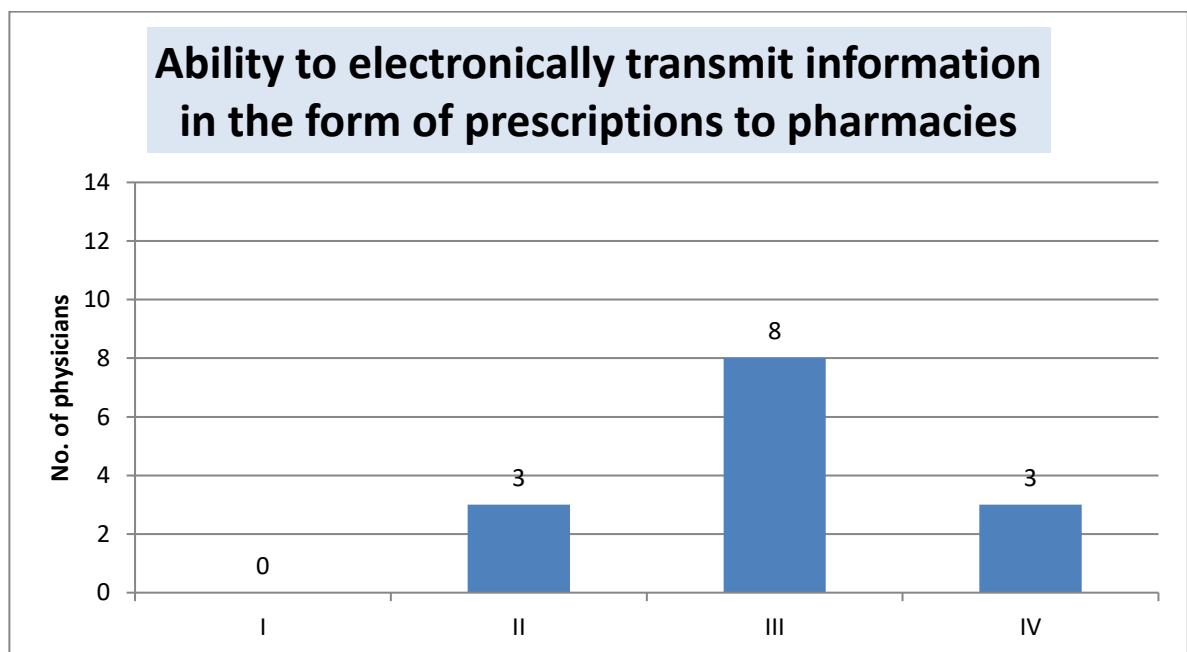


FIG. 11 Ranking between I to IV

None of the physicians have ranked ability to electronically transmit information in the form of prescriptions to pharmacies as the most important feature. Three physicians believed it is important, eight gave it third priority and only three believed it is least important.

PROBLEMS IDENTIFIED

1. Only two physicians out of 14 use Mediware to write online prescriptions.
2. Physicians believe that Mediware is more appropriately designed for billing purposes.
3. Physicians don't think the pro forma set in current software is up to the mark.
4. The current EMR system is not made for patient benefits.
5. The physicians lack boost from the organization to use Mediware.
6. Mediware is not contributing in improving overall productivity.
7. Changes are recommended to the EMR by the physicians.

SUGGESTIONS

Through the in depth interviews held with the physicians it is realized that physicians don't want to make much use of the EMR system since they believe that it would disturb the patient-physician interaction and may even make the patient feel irritated. Since physicians don't want to lose focus from the patients, following suggestions are made:

1. Appointment of a medical transcriptionist
2. The appointed MT should be a trained professional
3. The task of entering the data in the EMR system, as the physician examines the patient will vest in the hands of the MT
4. A pro forma should be developed including all the significant heads relating to patient care which should be standardized across all the medical centers
5. A pre-defined pro forma would help the physician to just fill the details with much accuracy
6. The format should be developed with the help of the IT staff keeping the polyclinic's setting in consideration
7. The ideology of physicians should be changed to introduce EMR more vigorously by holding training sessions
8. Standardization of the format/pro format should be made possible

CONCLUSION

Research suggests that health information technology (HIT), such as the EMR has the potential to help improve safety, quality, and the cost efficiency of healthcare services^[9]. However, many healthcare organizations have yet to realize these benefits as EMR adoption throughout the healthcare industry has been very slow. The success of EMR implementation is largely dependent upon the cooperation and acceptance of its users. For the purpose of this dissertation, the user group of focus was physicians since they are regarded as the key or principal users of EMR and efforts were made to understand the compliance to EMR by the user group.

The study found that physicians are willing to use the EMR system of the organization but only a few of them use it to write online prescriptions. They believe that EMR helps in increasing efficiency and brings quality in improvement of care but in the organization, the EMR system is serving better for billing process and documentation. Also, physicians feel that they are not much encouraged to use EMR and neither are majority of them satisfied with the current software and thus suggest that changes are made to make it more useful.

The reasons behind non usage of the current EMR system were found to be that the features included in the online system did not consist of what the physicians really want. Therefore, a pre developed pro forma is suggested. Also, physicians believe that if they spend too much time on writing prescriptions on EMR then they won't be able to spend much time on their patients which may dissatisfy them since patient care is of utmost priority to them.

STUDY INSTRUMENT

Q 1. Do you follow/use EMR that this organization provides?

A. YES B. NO

Q 2. Do you follow the procedure of writing prescription on Mediware?

A. YES B. NO

If no, why?

Q 3. Do you think EMR helps in increasing efficiency?

A. YES B. NO

Q 4. Do you think EMR provides better quality in improvement of care?

A. YES B. NO

Q 5. Rank the following benefits that you have realized as a physician with the implementation of the electronic medical record with 1 being the most important and the rest of the numbers accordingly.

- a) Immediate access to the patient record
- b) easier and quicker navigation through the patient record
- c) standardization of care amongst the physicians
- d) ability to electronically transmit information in the form of prescriptions to pharmacies

Q 6. Do you think EMR is cost saving?

A. YES B. NO

Q 7. Do you think Mediware is proving to be beneficial for patients?

A. YES B. NO

Q 8. Do you think your organization encourages you to use EMR?

A. YES B. NO

Q 9. Do you think Mediware contributes to improving productivity?

A. YES B. NO

Q 10. Do you think EMR documentation takes less time than my former documentation?

A. YES B. NO

Q 11. Do you think Mediware notes are more accurate and complete?

A. YES B. NO

Q 12. Do you think Mediware is better for billing documentation than clinical documentation?

A. YES B. NO

Q 13. Do you think Billing is more accurate and complete with the help of Mediware?

A. YES B. NO

Q 14. Do you think that Mediware helps in providing proper documentation?

A. YES B. NO

Q 15. Are you satisfied with the choice of EMR that this organization provides?

A. YES B. NO

Q 16. Do you think changes should be made in Mediware to make it more beneficial?

A. YES B. NO

REFERENCES

1. Menachemi, N., & Collum, T. H. (2011). Benefits and drawbacks of electronic health record systems. *Risk management and healthcare policy*, 4, 47–55. doi:10.2147/RMHP.S12985.
2. Robert H. Miller & Ida Sim. (2004). Physicians' Use Of Electronic Medical Records: Barriers And Solutions. VOL. 23, NO. 2: Beyond Managed Care.
3. Electronic Health Records In India: PTS – The Future Of EHR In India
4. Smith, D., & Newell, L. M. (2002). A physician's perspective: deploying the EMR. *Journal of healthcare information management: JHIM*, 16(2), 71-79.
5. Meinert, D. B. (2005). Resistance to Electronic Medical Records(EMRs): A Barrier to Improved Quality of Care. *Informing Science: International Journal of an Emerging Transdiscipline*, 2, 493-504.
6. Boonstra, A., & Broekhuis, M. (2010). Barriers to the acceptance of electronic medical records by physicians from systematic review to taxonomy and interventions. *BMC health services research*, 10(1), 231.
7. Ash JS, Fournier L, Stavri PZ, Dykstra R. Principles for a successful computerized physician order entry implementation. *AMIA Annu Symp Proc*. 2003; 2003:36–40.
8. 9th Annual Vitals Wait Time Report Released
9. Simoes E. (2015). Health information technology advances health care delivery and enhances research. *Missouri medicine*, 112(1), 37–40.