

Assessing the Impact of Electronic Health Record (EHR) systems on clinical workflow in a multispecialty hospital setting

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Background

- Healthcare professionals with paper records spend a lot of time in documentation and their maintenance
- The introduction of EHR in healthcare has helped healthcare professionals save valuable time in records documentation and maintenance.
- Moreover, EHR also helps in communication and collaboration with different specialties which directly impacts the quality of healthcare.



Purpose of the Research

Multispecialty hospitals, with their diverse range of medical services and complex organizational structures, provide an ideal context for studying the impact of EHR systems on clinical workflows. In these settings, efficient workflow and effective communication are critical for delivering high-quality patient care.



Objectives

The primary objective of this study aims to analyze the impact of EHR in clinical workflow by examining key factors as mentioned below:

- By evaluating the time spent on documentation and data entry tasks with the EHR system.
- Assessing the impact of EHRs on communication and collaboration among different specialties.
- Explore the influence of EHRs on patient interaction and quality-of-care delivery.



Review of Literature

A Qualitative Analysis of the Impact of Electronic Health Records (EHR) on Healthcare Quality and Safety: Clinicians’ Lived Experiences

Author	Year	Objective	Summary	Outcome	Limitations	Linkage	Methodology
Soumya Upadhyay, Han-fen-Hu	2022	to explore the lived experiences of clinicians, to assess the role of EHR in improving the quality and safety of healthcare.	the opinions of different groups of clinicians (physicians, hospitalists, nurse practitioners, nurses, and patient safety officers) of varying health organizations using semi-structured interviews to assess the role of EHR .	The clinicians had a positive overall experience with using EHR. Clinicians' personal experiences further reveal varied opinions about the efficacy of EHR and underscore the difficulties in implementing EHR. Revamping the EHR and enhancing its implementation process could be potential strategies to improve its efficacy.	Since the study relies on semi-structured interviews, there is a potential for interviewer and respondent bias. The personal experiences and perspectives of the clinicians may not fully represent the broader clinician population.	nurses were found to be more positive about the efficiency improvements brought by EHR, whereas other clinicians found EHR to be time-consuming. Thus different job roles had different perception of the EHR.	semi-structured interviews with clinicians were conducted from October 2018 to May 2019. The transcripts were coded using Qualitative Research Software (QSR Nvivo version 12) to derive themes and summarize concepts.

The influence of electronic health record use on collaboration among medical specialties

Author	Year	Objective	Summary	Outcome	Limitations	Linkage	Methodology
Janita F. J. Vos, Albert Boonstra Arjen Kooistra, Marc Seelen & Marjolein van Offenbeek	2020	To study collaboration among healthcare professionals using EHRs	Study on how EHR facilitates and constrains collaboration in five outpatient clinics.	EHR systems have the potential to significantly enhance collaborative practices in healthcare settings by providing accessible, shared, and comprehensive patient information. However, their actualization requires overcoming technical, organizational, and behavioral challenges.	The study was conducted in five outpatient clinics of a single Dutch hospital, which may limit the generalizability of the findings to other settings, especially those with different healthcare systems, cultures, and EHR implementations.	By identifying specific affordances and constraints of EHR systems, the study provides insights into how technology can support or hinder collaborative practices.	The relatively small sample size limits the generalizability of the findings to all settings

A comparison of physician pre-adoption and adoption views on electronic health records in Canadian medical practices

Author	Year	Objective	Summary	Outcome	Limitations	Linkage	Methodology
Norm Archer Mihail Cocosila	2011	To find the EHR perceptions of physicians already using EHR systems compared with those not using one, through the lens of theoretical model	There are not many differences in how physicians who already use EHR systems and those who do not yet use them perceive the adoption and use of these systems	Improving EHR design, emphasizing their relevance to physicians, and providing evidence of their user-friendliness and effectiveness is key to increasing the success of new EHR implementations from a behavioral perspective	The relatively small sample size limits the generalizability of the findings to all healthcare settings	The study investigates behavioral intention to continue using or adopt EHR systems, which is a crucial precursor to actual technology use.	an online cross-sectional survey where Data was collected both from physicians using EHRs and those not using EHRs, and analyzed with structural equation modeling (SEM) techniques.

Exploring association between certified EHRs adoption and patient experience in U.S. psychiatric hospitals

Author	Year	Objective	Summary	Outcome	Limitations	Linkage	Methodology
Xuejun Hu, Haiyan Qu, Shannon H. Houser, Huoliang Chen, Xianzhi Zhang, Min Yu	2020	to examine the relationship between certified EHR adoption and patient experience across psychiatric hospitals in the United States.	Positive associations were identified between certified EHR adoption and five patient perception measures namely recommend hospital, overall hospital rating, discharge information, care transition and responsiveness of hospital staff.	The implementation of certified EHRs in psychiatric hospitals is linked to positive enhancements in patient satisfaction across these measures.	The design of the study limits establishing a direct cause-and-effect relationship between the adoption of certified EHR and improved patient experience as it is cross-sectional and only demonstrates associations, not causality.	This study provides evidence suggesting that certified EHR adoption in psychiatric hospitals is positively associated with patient experience, which is a crucial component of quality of care.	A cross-sectional study design where data were drawn from the American Hospital Association (AHA) Annual Survey Database and Hospital Compare datasets.

Research Methodology

Study design:

This study employs a cross-sectional study design to evaluate the impact of Electronic Health Records (EHR) on Clinical Workflow in a Multispecialty Hospital Setting.

Study setting:

The study was conducted in Maxwell Hospital Jaipur, Rajasthan, a multi-specialty hospital and a prominent healthcare facility in the region.

Study population:

Healthcare providers (doctors, nurses) and administrators working in the hospital across specialties who frequently use electronic health records.

Duration of Study:

The study was conducted during March- June2024.

Sampling and sample size:

Sample size of 18 clinicians (physicians, nurses, physical assistants) and administrative staff was recruited.

Data collection method

The study used a quantitative method to collect data where a survey of questionnaire is shared to the healthcare professionals to provide their feedback online based on their experience. The survey includes a questionnaire covering the following aspects :

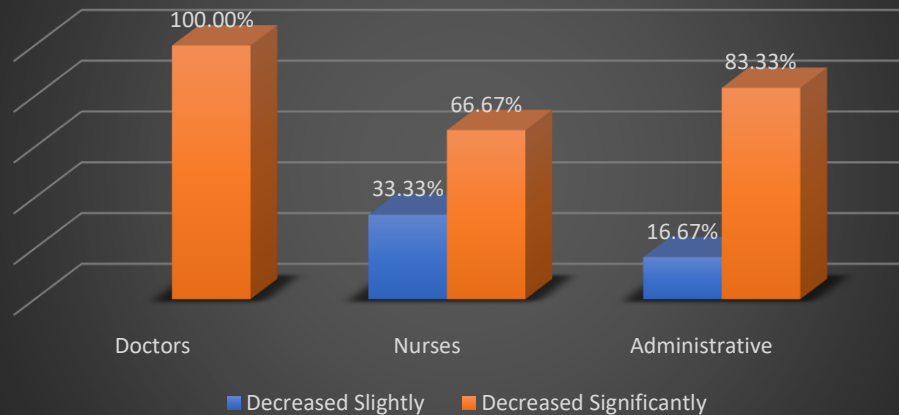
- Sections of the healthcare professionals using EHR frequently
- frequency of usage of EHR systems
- Ease of use and time spent on documentation with the EHR system
- Impact of EHR on communication with other specialties
- Impact of Healthcare on quality care of patients
- Do they recommend the use of EHR systems?
- Challenges and issues faced while using EHR systems

Key findings

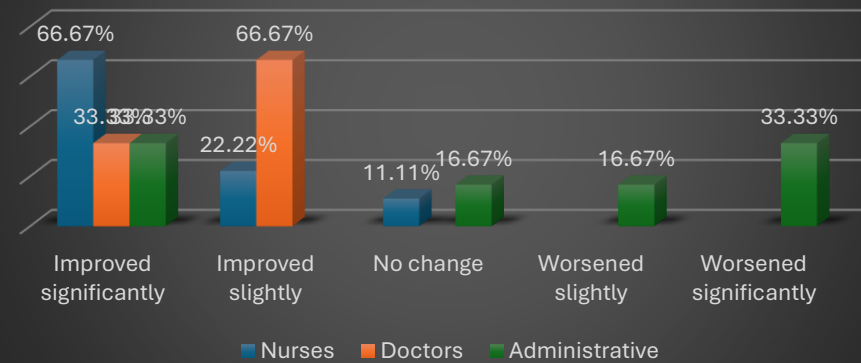
Based on the feedback provided by healthcare professionals it has been observed that :

- Almost all the healthcare professionals agree that there is a decrease in documentation time due to standard templates and format and the ease of use
- Also, the communication between different specialties has been improved as most of the required information is available with both the healthcare professionals involved in the discussion

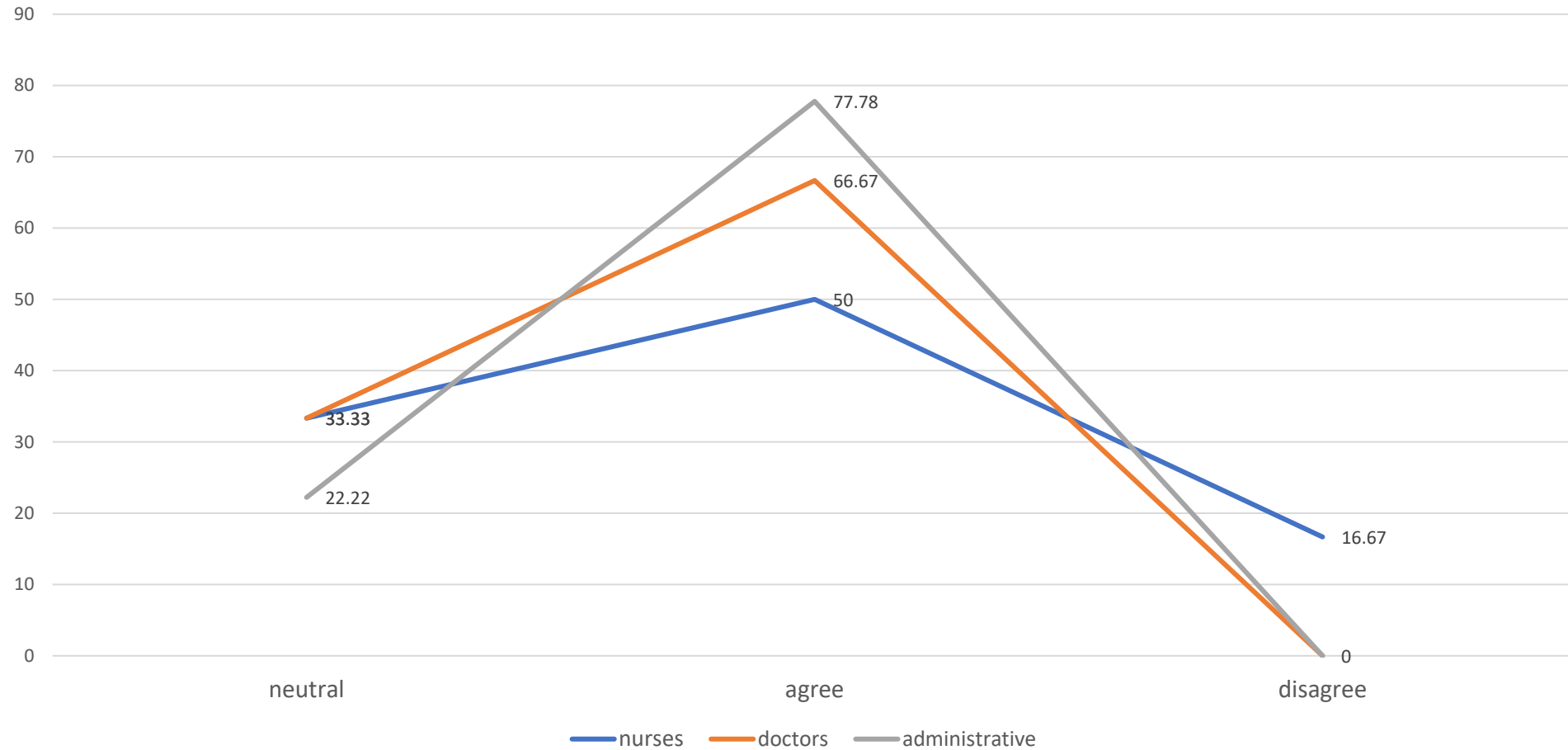
1.1 Time spend on data entry task



1.2 Effect of EHR on communication from different specialities



1.3 Opinion of staff on EHR improves quality of care in percentage

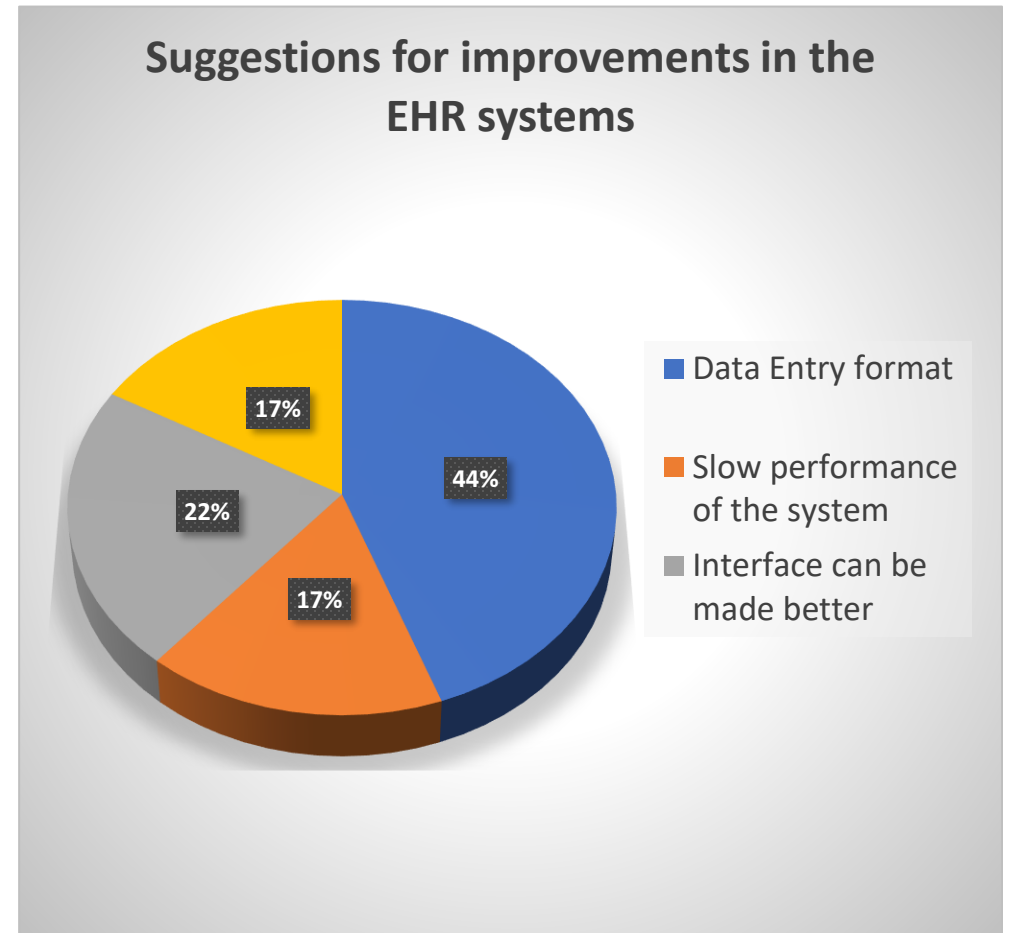


- Around 66.67% doctors, 50% nurses and 77.78% administrative staff agrees that the introduction of the EHR system has improved the quality of care delivered to the patient.

- Feedback regarding the EHR system or any suggestions.

The challenges could be summed as follows:

- Data entry format can be improved.
- Slow performance of the EHR systems can often create delay in patient care.
- Many felt that the user interface can be improved.
- Others-- here healthcare professionals highlighted some problems like training requirements to use EHR, time spent interacting directly with patients in person is decreased etc.



Conclusion

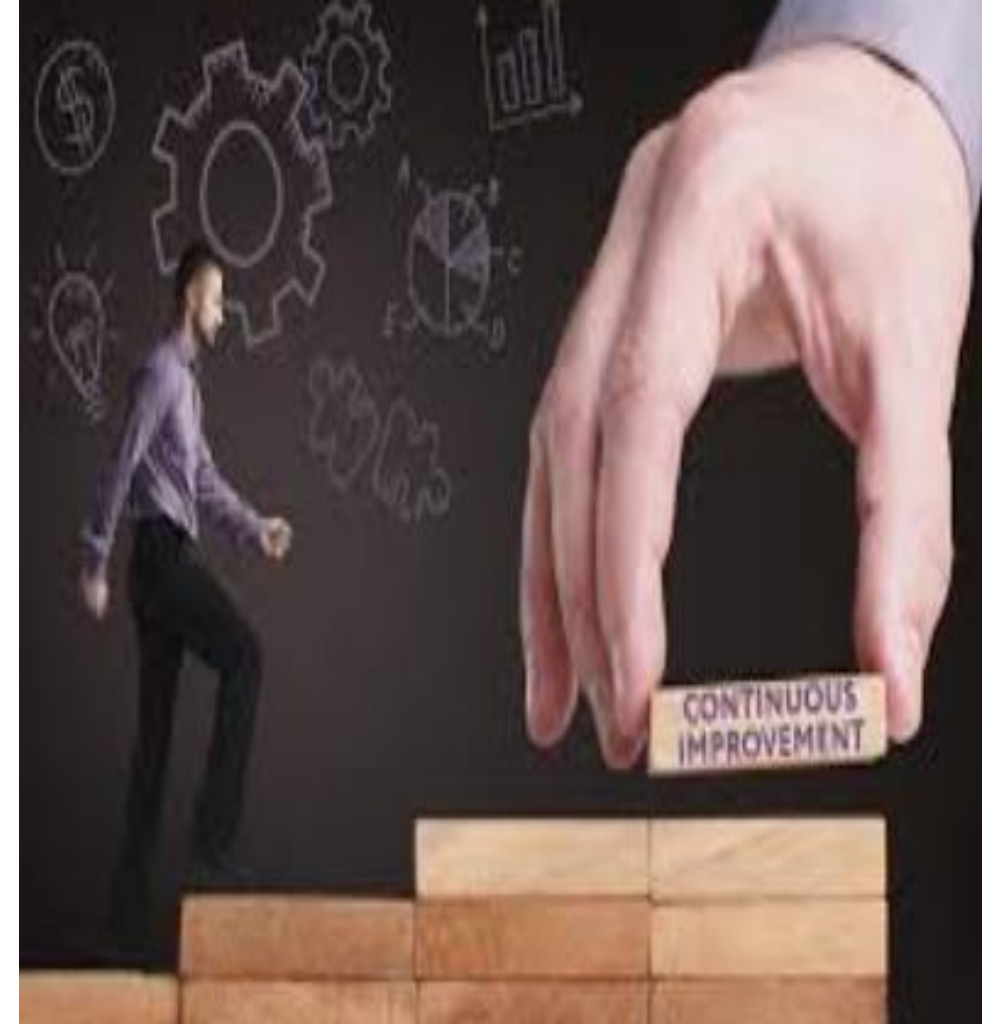
With the help of analysis done on the feedback provided by various healthcare professionals. We can see that use of EHR is significant in the daily work of healthcare professionals whether they are doctors, nurses and administrative staff. While some responses to certain questions were mixed, the overall consensus highlighted various benefits as listed below:

- The time required for documentation is decreased allows healthcare provide to spend more time in patient care
- Improved communication among healthcare professionals helps in improving the treatment quality
- Above factors helped in improving the overall quality care of the patients
- Reduced the errors in documentation as standard template and format help in reduction of the manual error

Scope of Improvement

There are several benefits of EHR in clinical workflow. However, there are areas where certain steps will enhance their impact:

- User interface can be designed as per the department which enhances the user experience
- Advanced Technology of Data Entry: using the latest technology like speech-to-text will improve the efficiency and accuracy of data entry tasks
- Regular training should be arranged to navigate the interface to drill down and search for required details
- Use of best-of-industry legally approved security protocols to ensure data security and privacy



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THANK YOU!