

Electronic Health Record System

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1. Slides 1 and 2: Introduction

1.1 Definition of main concepts

Electronic health record (EHR) systems are the key theme that the study focuses on.

A digitalized repository of patient health information, including their medical history, diagnosis, treatments, and other pertinent information, is referred to as an electronic health record system (EHR). EHR systems are intended to take the role of conventional paper-based records, expediting healthcare operations, strengthening provider coordination, and optimizing patient outcomes (Goldstein et al., 2017).

1.2 Rationale of the research

Healthcare practices have changed as a result of hospitals adopting EHR systems more often. It is essential to comprehend these systems' points of view, advantages, difficulties, and disadvantages to fully realize their potential. To fill the information gap and shed light on the effects of EHR systems on healthcare delivery, quality, and patient satisfaction, we are undertaking this study.

1.3 Aim

The primary goal of this research is a thorough evaluation of how the hospital EHR system is used.

1.4 Objectives

- To evaluate the views and opinions of patients and healthcare workers on the use of EHR systems in hospitals.
- To list and evaluate the many advantages EHR systems provide for healthcare organisations, such as increased productivity, accuracy, and data accessibility.
- To look into and comprehend the difficulties and downsides associated with the installation and usage of EHR systems, such as potential disruptions to workflow and worries about data security.

2. Slide 3: Background

The transformation of patient information collection, storage, and access with the adoption of electronic health record (EHR) systems represents a critical turning point in the healthcare sector

(Yadav et al., 2018). Before the development of EHRs, healthcare organisations mostly used clumsy paper records, which presented several difficulties such as data duplication, accessibility restrictions, and potential transcription mistakes (Shi et al., 2020). The demand for increased effectiveness, simpler processes, and improved patient care served as the driving force behind the switch to EHRs. EHR systems have gradually been adopted across various healthcare settings as a result of healthcare providers seeing the potential advantages of digitising patient data as technology developed.

3. Slide 4: Methods

3.1 Data collection / Search strategy

PubMed and Google Scholar are the two main databases used. To guarantee that the study represents the most recent advancements and trends in EHR systems, the search is limited to articles published after 2016. To hone down on relevant results, the search method employs Boolean operators and pertinent keywords. Many different permutations of the terms "electronic health record system," "EHR adoption," "EHR benefits," "EHR challenges," and "EHR perspectives" are used. Boolean operators like "AND" and "OR" are also used to narrow the search and include related or synonym phrases.

3.2 Data analysis

The data taken from the chosen articles are analysed using thematic analysis.

3.3 Ethical considerations

To provide due acknowledgement to the original writers of the publications utilized in the analysis, correct reference and referencing are followed. Data security and confidentiality are ensured during data gathering and analysis.

4. Slides 5 & 6: Results

4.1 Characteristics of Studies

<i>Citations</i>	<i>Aim</i>	<i>Method</i>	<i>Location</i>	<i>Findings</i>
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Shaw et al. (2017)	The research sought to build an understanding of eHealth.	To learn about important informants' opinions and experiences with eHealth, the authors conducted semi structured interviews with them (N=25)	USA	Thematic analyses identified three significant but overlapping eHealth domains
Shackle et al. (2017)	The study aimed to focus on the uses of e-health records	Current literature was researched to develop a review	USA	EHR is used for different clinical applications.
Downing et al. (2018)	The study aimed to evaluate the relationship between physician burnout and the e-health record system.	The qualitative method was used	Australia	Physician burnout and e-health record system are related.
Xiao et al. (2018)	To show alternative deep learning architectures for examining various data sources.	To find articles on deep learning research utilizing EHR data published	Not mentioned	The following analytics tasks were discovered and named by the authors: illness detection/classification, sequential clinical event prediction, idea embedding, data

				augmentation, and EHR data privacy.
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4.2 *Analysis of Data*

4.2.1 *Perspective on EHR*

Shaw et al. (2017) sought to create a conceptual model of eHealth, concentrating in particular on the viewpoint of EHR use. They discovered three crucial themes through key informant interviews: health in our hands, engaging for health, and data enabling health. This approach emphasizes the advantages of integrating digital technology across several EHR domains while providing explicit definitions and a taxonomy to aid in understanding EHR usage. It gives information about the complexity and possible overlaps in the usage of EHRs and concludes by recommending that successful projects should include components from all three areas.

4.2.2 *Benefits of EHR*

Using deep learning methods for EHR analysis, Shackle et al. (2017) carried out a survey. They emphasised how EHRs might also be used for a variety of clinical informatics tasks, including information extraction, outcome prediction, and representation learning. Numerous deep-learning applications with promising outcomes were highlighted in the review. The study did, however, draw attention to certain drawbacks, such as the model's interpretability and the heterogeneity of the data. Despite these difficulties, deep learning models have the power to revolutionise clinical activities based on EHRs, enhancing productivity and clinical judgement.

4.2.3 *Challenges of EHR*

In their investigation of physician burnout in the EHR age, Downing et al. (2018) found that EHR interaction can undermine patient-physician interactions and lead to professional discontent and burnout. The burden on doctors is increased by documentation requirements that are fueled by billing and reimbursement. In their comprehensive assessment of deep learning models for EHR data, Xiao et al. (2018) identified issues with data and label availability, model interpretability, transparency, and deployment simplicity. To lessen the strain on healthcare practitioners, usability enhancements in EHRs and system optimisation are required.

5. Slides 7-9: Discussion

5.1 Discussion

Analysis of research on the advantages, issues, and perspectives of EHRs offers insightful information about electronic health record systems. While Shackle et al. (2017) emphasise deep learning's promise for EHR analysis, Shaw et al. (2017) give a thorough conceptual model. Physician burnout is emphasised by Downing et al. (2018), while data-related difficulties are mentioned by Xiao et al. (2018). These papers highlight typical obstacles to adopting EHRs which are also highlighted in other studies (Shi et al., 2018; Goldstein et al., 2017)

5.2 Recommendations

According to the study's findings, it is advised to use the Shaw et al. (2017) conceptual model of eHealth to successfully integrate and use EHR systems. Deep learning adoption can also improve EHR analysis and assist in clinical decision-making, as noted by Shickel et al. (2017). Improving EHR usability, optimising systems, and encouraging physician well-being by lowering administrative responsibilities are necessary to address the issues (Goldstein et al., 2017).

5.3 Importance of Findings

- The results of these investigations are essential for improving our comprehension and use of electronic health record systems.
- The challenges identified can be overcome with the help of adequate policies and procedures.

5.4 Limitations

- The study only uses articles published after 2016, which limits the study from the literature published before the year.
- No quantitative data were included in the study.

6. Slide 10: Conclusion

The study analysed 4 articles published after 2016. The evaluation of studies on the use, advantages, and difficulties of electronic health record systems yields important insights.

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