



RESEARCH ARTICLE

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EHR & EMR - A Wholesome View on its Impact in EDI Transaction

Gokul Ramadoss

USA

ABSTRACT

This research examines how EHR/EMR technology affects hospital EDI transactions. An extensive Google Scholar and Dimensions peer-reviewed literature analysis indicates various EHR/EMR integration advantages. This enhances data quality and efficiency. The paper identified significant data sharing and legal compliance issues that may impede information exchange and privacy. EHR and EMR systems offer many advantages, but the research demonstrates that more effort is needed to standardize procedures and ensure systems operate together to improve EDI operations.

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Electronic Health Record, Electronic Medical Record, Electronic Data Interchange, Legal Compliance, Information Exchange

Introduction

Most large firms have invested heavily in computers in the last decade. Online shopping, vacation booking, and airline tickets are more popular than 10 years ago [1,2]. Medical, legal, commercial, and other degrees exist online. Despite advances in technology, most patients still write on their tablets by hand and cannot call or book an appointment without a front desk person [3]. EHRs may replace paper-based healthcare with one that uses clinical and other data to improve patient care. It urged hospitals and doctors to utilize EHRs. HITECH mandates "meaningful" EHR use, including error-reducing and cost-cutting features [4]. Simple EHRs benefit patients and society in a small way. This research addresses these difficulties. The research focuses on the HER-EMR impact literature. Since consequences might be positive or detrimental [5]. This research examines those consequences.

Significance of the Study

This research examines how EHRs and EMRs affect healthcare EDI discussions. EHRs and EMRs improve patient data quality and availability. This streamlines EDI insurance claims and billing. Understanding how these technologies affect data accuracy, operation speed, and legal compliance improve healthcare administration and patient care.

Problem Statement

Even though EHRs and EMRs have improved, EDI integration is still tough. Data transactions are incorrect and wasteful due to data sharing, system compatibility, and laws [3,6]. Issues slow data transmission, increase administrator effort, and endanger patient data security [7]. EHR and EMR systems affect EDI exchanges,

and this article proposes solutions to enhance healthcare data transmission.

Literature Review

EHRs try to decrease medical mistakes. However, EHR deployment has caused additional problems that may threaten patient safety and care [8]. The EHR system utilized an old, normal Pap test result instead of the more recent, terrible ones, delaying treatment for a cancer patient for years. A problem in entering a handwritten request into the computer destroyed another newborn by overdosing on drugs [9]. Automatic notifications may have averted this medical mistake.

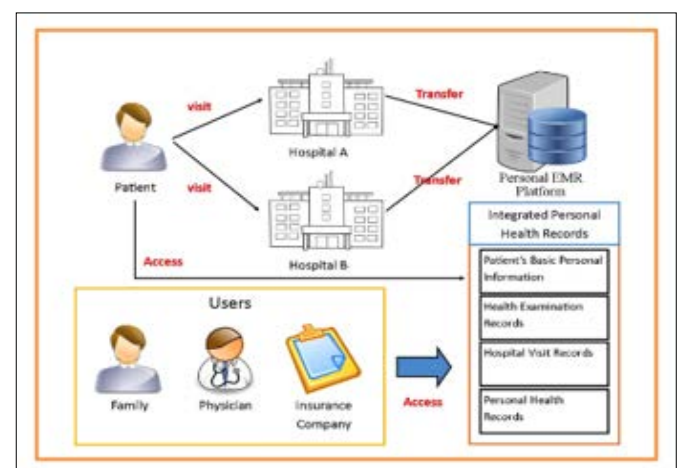


Figure 1: Electronic Medical Record

Importance of HER

One or more visits to any care location, an EHR stores the patient's health information. This information includes demographics,

Contact: Gokul Ramadoss, USA.

progress notes, issues, medications, vital signs, medical history, vaccines, test results, and x-rays [10]. A major advantage of EHRs is that they make digital information easier to obtain and eliminate sloppy handwriting in medical records [11]. There are many EHR capabilities, but three have the greatest potential to enhance treatment quality and cut costs throughout the health care system [12].

Scope of Electronic Health Records

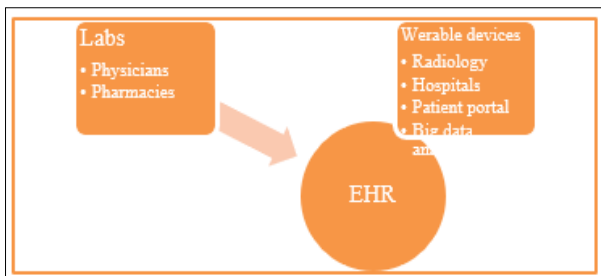
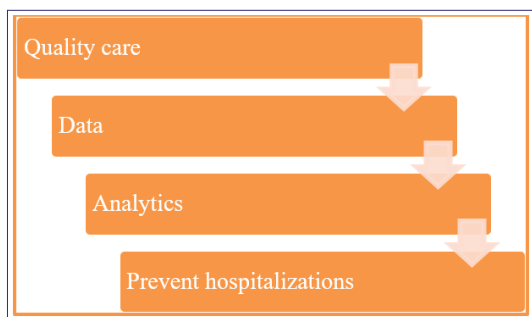


Figure 2: Electronic Health Care System

Many people mistake "Electronic Health Record" with other terms for a patient's medical file [7]. The nature and scope of electronic health records fluctuate, and frequently, a country's definition of an EHR may differ from another's [6,13]. People who use this technology in their building know the difference between an EHR and an EMR and choose the right one [14]. A record in electronic form that is theoretically capable of being shared throughout various healthcare environments and that includes a range of data like the population, medical history, medicine and allergies, immunization status, laboratory test results, imaging results, vital signs, personal statistics like height and weight, and more [15]. Certified clinical experts from a healthcare institution produce and maintain this computer record [16].



EHR and EMR

Knowing EMR and EHR differences helps us identify their roles. Strout et al, claims that most individuals don't utilize this technology because they don't understand EHRs and EMRs. EMR and EHR communication standards differ because of ambiguity [17]. Stablein used Google Search Trends to see whether EHR or EMR terminology increased between 2008 and 2012 [18]. The most sought-after terms signify knowledge, increasing their use. After the referendum, businesses, governments, and physicians picked "EHR" over "EMRs." EHRs are software. Healthcare institution requirements determine EHR configuration. Shah & Khan, claims these and other technological standards hinder connection [19].

EMRs	EHRs
A digital version of a paper chart from one provider only	A digital record of a patient's overall health from various healthcare providers
Cannot be shared with another healthcare provider	Designed to easily share health information across various healthcare settings
Patient information does not move outside one healthcare setting	Allows medical information to move with the patient to various healthcare settings
Used for diagnosis and treatment only	Designed to support medical decision making with various built-in tools

Figure 3: EHR and EMR

Materials and Methods

A thorough literature evaluation determines how EHR and EMR affect EDI interactions. Professionals assess academic research using this method. To demonstrate how EHR and EMR systems influence healthcare EDI. This study verifies data using Google Scholar and Dimensions papers. These articles provide current field results. This research method lets us review previous studies on the effects, difficulties, and solutions of combining EHR and EMR with EDI transactions.

Data Collection

A thorough literature review examines how EHR and EMR affect EDI transactions. This study utilized peer-reviewed publications from Google Scholar and Dimensions. These were selected because of their reliable monitoring of high-quality research and diversified academic writing.

Search Strategy

To find relevant material, use the terms "challenges in electronic health data interchange," "impact of EMR on data exchange," and "e HR and EDI integration." AND OR operators controlled search results to discover all study-related documents.

Data Analysis

This study examined how EHR and EMR systems affect EDI processes and difficulties. After combining the data, and recommendations for improving healthcare EDI exchanges were made

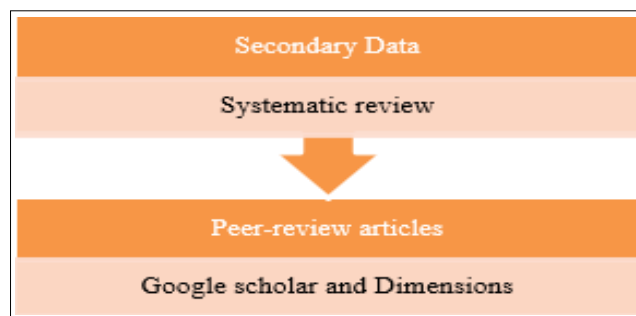


Figure 4: Research Methods

Results

Merging EHR and EMR systems with EDI transactions enhances data quality and efficiency. Research shows [7,17,18] that EHR and EMR systems simplify patient data exchange, reducing typing mistakes and speeding transactions. In 2023, cross-platform information flow still be limited by data exchange and system compatibility. EDI exchanges may lose value due to data security and privacy laws [20]. These results demonstrate the need for improved EHR and EMR technology and fixed procedures to facilitate better healthcare data transfer.

Findings and Discussion

The research found several crucial EHR and EMR EDI features.

Theme 1: Data Accuracy

EHR/EMR technologies improve data accuracy. Technology updates patient data and reduces errors. Data aggregation makes EHR/EMR platform sharing simpler and more reliable. This enhances healthcare efficiency and accuracy [21]. This improved accuracy reduces errors and improves patient care by providing healthcare professionals with up-to-date information.

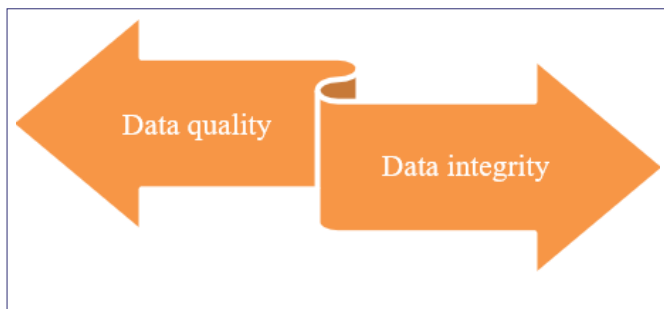


Figure 6: Data accuracy

Theme 2: Better Efficiency

The EHR/EMR integration benefits healthcare firms. This technology helps healthcare staff streamline billing and insurance claims. Automation streamlines patient data management and other healthcare tasks [22]. This saves time, errors, and money.

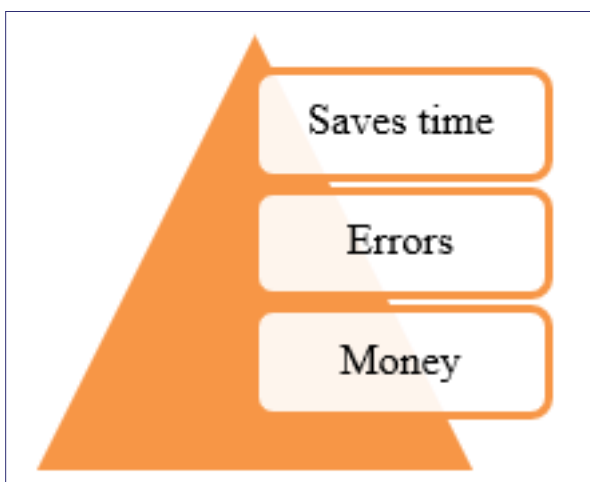


Figure 5: Better Efficiency

Theme 3: Data integration issues

Despite advantages, the research identifies data integration and system compatibility issues. EHR and EMR data formats vary, making exchange difficult. EDI delays and errors might result from incompatible systems [23]. Healthcare systems must solve compatibility issues to exchange data.

Theme 4: Regulation compliance

Research indicates that it poses significant challenges. EHR and EMR data security standards prevent EDI exchanges. These criteria are difficult for healthcare businesses to meet. Compliance and quick data transmission need planning and execution [24].

Conclusion

The shows that EHR, EMR, and EDIS procedures improve healthcare accuracy and efficiency. Data sharing and regulatory compliance continue to pose challenges, necessitating ongoing development and standardization efforts. To maximize the benefits of EHR and EMR systems, we need to improve processes and system communication. This will improve healthcare data management over time [25,26].

Research Limitations and Future Work

This investigation is limited to using only Google Scholar and Dimensions peer-reviewed literature. It may overlook research from libraries and sources. Because it only covers new events, it may overlook long-term patterns and historical occurrences. Case studies or surveys might help researchers understand the problems and solutions of integrating EHR and EMR into EDI transactions. Investigating how environmental factors impact these processes provide further knowledge.

References

- [1] Al-Issa Y, Ottom MA, Tamrawi A (2019) eHealth cloud security challenges: a survey. Journal of healthcare engineering 7516035.
- [2] Dash S, Shakyawar SK, Sharma M, Kaushik S (2019) Big data in healthcare: management, analysis and future prospects. Journal of big data 6: 1-25.
- [3] Cole CL, Cheriff AD, Gossey JT, Malhotra S, Stein DM (2022) Ambulatory Systems: Electronic Health Records. In Health Informatics 61-94.
- [4] Eden R, Akhlaghpour S, Spee P, Staib A, Sullivan C, et al. (2018) Unpacking the complexity of consistency: Insights from a grounded theory study of the effective use of electronic medical records.
- [5] Ehrenstein V, Kharrazi H, Lehmann H, Taylor CO (2019) Obtaining data from electronic health records. In Tools and technologies for registry interoperability, registries for evaluating patient outcomes: A user's guide, 3rd edition, Addendum 2 [Internet]. Agency for Healthcare Research and Quality (US).
- [6] Gawande A (2018) Why doctors hate their computers. The New Yorker 12.
- [7] Gopal G, Suter-Crazzolara C, Toldo L, Eberhardt W (2019) Digital transformation in healthcare—architectures of present and future information technologies. Clinical Chemistry and

- Laboratory Medicine (CCLM) 57: 328-335.
- [8] Hancock J, Mattick K (2020) Tolerance of ambiguity and psychological well-being in medical training: a systematic review. *Medical education* 54: 125-137.
- [9] Horth RZ, Wagstaff S, Jeppson T, Patel V, McClellan J, et al. (2019) Use of electronic health records from a statewide health information exchange to support public health surveillance of diabetes and hypertension. *BMC Public Health* 19: 1-7.
- [10] Jabour AM (2020) The impact of electronic health records on the duration of patients' visits: time and motion study. *JMIR medical informatics* 8: e16502.
- [11] Kim SH, Kwon J (2019) How do EHRs and a meaningful use initiative affect breaches of patient information?. *Information Systems Research* 30: 1184-1202.
- [12] Ozalp H, Ozcan P, Dinckol D, Zachariadis M, Gawer A (2022) "Digital colonization" of highly regulated industries: an analysis of big tech platforms' entry into health care and education. *California Management Review* 64: 78-107.
- [13] Essén A, Scandurra I, Gerrits R, Humphrey G, Johansen MA, et al. (2018) Patient access to electronic health records: differences across ten countries. *Health policy and technology* 7: 44-56.
- [14] Graber ML, Siegal D, Riah H, Johnston D, Kenyon K (2019) Electronic health record-related events in medical malpractice claims. *Journal of patient safety* 15: 77-85.
- [15] Schulz S, Stegwee R, Chronaki C (2019) Standards in healthcare data. *Fundamentals of clinical data science* 19-36.
- [16] Koppel R (2022) Healthcare Information Technology's Relativity Challenges: Distortions Created by Patients' Physical Reality versus Clinicians' Mental Models and Healthcare Electronic Records. *Qualitative Sociology Review* 18: 92-108.
- [17] Melton GB, McDonald CJ, Tang PC, Hripcsak G (2021) Electronic health records. In *Biomedical Informatics: Computer Applications in Health Care and Biomedicine*. Cham: Springer International Publishing 467-509.
- [18] Strout TD, Hillen M, Gutheil C, Anderson E, Hutchinson R, et al. (2018) Tolerance of uncertainty: A systematic review of health and healthcare-related outcomes. *Patient education and counseling* 101: 1518-1537.
- [19] Stablein T, Loud KJ, DiCapua C, Anthony DL (2018) The catch to confidentiality: the use of electronic health records in adolescent health care. *Journal of Adolescent Health* 62: 577-582.
- [20] Lite S, Gordon WJ, Stern AD (2020) Association of the meaningful use electronic health record incentive program with health information technology venture capital funding. *JAMA network open* 3: e201402-e201402.
- [21] Shah SM, Khan RA (2020) Secondary use of electronic health record: Opportunities and challenges. *IEEE access* 8: 136947-136965.
- [22] Modise TK (2019) Electronic health records adoption in South African Healthcare Providers: a case of North West Province (Doctoral dissertation, North-West University (South Africa)).
- [23] Ratanawongsa N, Matta GY, Bohsali FB, Chisolm MS (2018) Reducing misses and near misses related to multitasking on the electronic health record: observational study and qualitative analysis. *JMIR human factors* 5: e9371.
- [24] Nair A, Dreyfus D (2018) Technology alignment in the presence of regulatory changes: The case of meaningful use of information technology in healthcare. *International journal of medical informatics* 110: 42-51.
- [25] Senteio C, Veinot T, Adler-Milstein J, Richardson C (2018) Physicians' perceptions of the impact of the EHR on the collection and retrieval of psychosocial information in outpatient diabetes care. *International journal of medical informatics* 113: 9-16.
- [26] Martin Jr RT, Stacy K (2021) Rapid Adoption of Telehealth Technologies Can Leave Patients and Data at Risk.