

The Impact of Electronic Health Records in the Health Care Industry

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Abstract

This paper discusses the vast benefits of implementing electronic health records (EHRs) versus the paper-based method in health care facilities. EHRs offer an enhanced and more accurate system of storing data, an ability to communicate with patients, and are able to provide accessible data between patients and healthcare professionals. Furthermore, EHRs are also proven to be more cost effective for health care organizations by having all information on one system. This paper also debates limitations with EHRs and physician burnout however with further research this can be improved in the future.

Keywords: electronic health records, EHRs, patient data, health care, physician burnout

Introduction

The purpose of this paper will be to discuss the benefits of electronic health records (EHRs) and its impact in health care organizations. EHRs are able to present available data and information to health care providers and patients in order to provide the best patient care. This includes storing patient history, medication lists, and diagnostic services. Physicians can use this information located in EHR systems during patient visits to suggest better medical treatment and care. It can also reduce medical errors and provide accuracy through closely monitoring previous medication history and preventing drug interactions. Furthermore, these electronic records can enable patient communication by implementing pre questionnaires and patient portals that facilitate messages with physicians.

Literature also shows that implementing EHRs in health care will be financially advantageous in the long run. For example, a study was conducted over a five-year period that exhibited financial gain through using electronic health records versus the paper-based method (Wang et al., 2003). This accounted for a \$85,000 net benefit over time due to a reduction in billing errors and a savings in drug expenditures (Wang et al., 2003). Thus, physicians are better able to diagnose and order more accurate lab tests in turn saving more costs over time. Compared to the paper-based method, implementation of EHRs save time on documentation and are more cost efficient due to eliminating the need to look for the administrative team to look through paper files in order to pull up medical information (Fritz et al., 2012).

Potential limitations that have been faced with the application of EHRs are physician burnout and increased time in maintaining the records. The ultimate goal is to reduce this time by dividing responsibilities amongst different team members in the facility (Nguyen et al., 2021). This includes uploading pre-questionnaire documents in patient portals to fill out prior to appointments and automatically uploading it into the record database for physicians to use when they are with the patient (Nguyen et al., 2021). Furthermore, electronic health records still have

room for improvement but further research is required and potential solutions are being addressed.

Body

According to Uslu & Stausberg (2021), Electronic Health Records (EHRs) are a “computer-stored collection of health information about a person, linked by a person identifier” (p.2). These records are able to be accessed by healthcare facilities and professionals and can be shared amongst patients in certain settings. The purpose of EHRs are to accurately store data in a secure manner and show the history of a patient’s health record. This eliminates the use of paper copies as information is more accessible once it is electronic. Information included in EHR systems are medication history, immunizations, laboratory tests, billing information and more (Nyugen et al., 2021). Furthermore, medical errors are able to be reduced by being able to remove legibility errors from paper based records (Fritz et al, 2012). Data capture is more accurate as there is a decreased risk of losing paperwork and information does not need to be transferred from paper to the system also known as back charting (Rose et al., 2022).

Multiple studies have shown that efficiency has improved with the implementation of EHRs. For example, a study researched by Uslu & Stausberg (2021) presented that electronic health records reduce death by 34%, readmissions by 39%, and spending by 16%. This is because less laboratory tests are ordered, medication errors are decreased, and radiology examinations are more accurate (Uslu & Stausberg, 2021). In addition, EHR systems have greatly transformed the clinical decision-making process with nurses. Webb (2021) discusses how electronic health records are a necessity in nurse informatics in order to make better decisions for improved patient care. This has positively impacted patient outcomes by allowing nurses to look through patient history through electronic data and make more accurate and informed decisions for their patient. Likewise, EHRs have been essential in emergency

departments (ED) to deliver tissue plasminogen activator (tPA) to patients with acute ischemic stroke (Rose et al., 2022). Physicians were able to look at audit log data to determine when to administer tPA to patients by looking at their Medication Administration Record (MAR) rather than going through paper records (Rose et al., 2022).

Additionally, the application of electronic health records has financially benefited health care organizations in different ways. A study presented by Wang et al. (2003) showed that implementation of records reduced total drug costs per year by 15%, laboratory charges by 8.8%, and radiology ordering by 14%. There are two types of costs that are associated with establishing an EHR system: system costs and induced costs. System costs are the cost of software, training and support whereas induced costs are the transition costs associated with the transition from a paper to an electronic system (Wang et al., 2003). These implementation expenditures induced a temporary loss however over a 10-year period, the net benefit was \$237,000 per provider (Wang et al., 2003). Although there are more costs upfront to supplement the EHR at first, studies have shown that it will deem an investment for healthcare organizations over time. Thus, EHRs should be used in health care facilities as a cost-efficient measure.

Although electronic health records have played an integral role in healthcare systems, there are still some limitations that need to be addressed through further research. Cox et al. (2021) researched data that has suggested a link between using EHR and job burnout between health care physicians. This study was measured through monitoring average time surgeons spent logging in data into the EHR and how much time was spent outside of medical care. It was shown that on average, general surgeons were logged onto EHR systems for about 13.75 hours per week, with 13% of EHR use after work hours (Cox et al., 2021). However, this burden could be alleviated with dividing the more “clerical” tasks in the EHR to the administrative team and allowing the physicians to focus on decision processes and face to face patient care (Cox et al.,

2021). Additionally, Bakken & Baker (2022) studied potential future solutions for enhanced EHR through making the interface more user friendly and decoupling clinical documentation from billing so that clinical notes only show necessary information for providing proper care for the patient. Although improvements are needed, electronic health records have been adding immense value in the clinical process.

Conclusion

In conclusion, electronic health records (EHRs) are beneficial in health care organizations because they provide an enhanced system for storing patient information versus the paper-based method. This online database helps improve coordination and communication amongst health care professionals which can lead to better overall care for patients. The implementation of EHRs also allow for effortless access to patient information through speed and accuracy of diagnoses and treatments. The ability for a health care provider to see a patient's medical history is helpful in order to recommend next steps in a treatment process. In addition, electronic health records can help with reducing medical errors and enhance patient outcomes. Multiple studies have shown that patient care is improved due to the ability of professionals to recommend treatment and medications as well as order the appropriate lab tests. Overall, EHRs have the ability to improve the quality of patient care in a variety of ways.

Although the incorporation of EHRs can be high in costs and require a heavy investment initially, the benefits may outweigh the consequences. Studies have shown that over time, EHRs have reduced costs and obtained net gains through the elimination of paper-based records. Another potential limitation that needs to be addressed is the burnout some health professionals face when implementing a new system. A lot of data that needs to be entered electronically can be divided amongst different groups such as patients and the administrative team. For example, patients can fill out pre-questionnaires and demographic information before meeting with a

professional in order to save time. Thus, further research may need to be conducted but electronic health records are moving in a positive direction for patients and professionals in the healthcare field.

References

Bakken, S., & Baker, C. (2022). Measurement and automation of workflows for improved clinician interaction: Upgrading Ehrs for 21st Century healthcare value. *Journal of the American Medical Informatics Association*, 30(1), 1–2. <https://doi.org/10.1093/jamia/ocac21>

This journal article discusses the contribution of the use of EHR in medical billing, research and patient data. Potential solutions were discussed in enhancing EHR workflow and

maintenance such as separating billing documentation from clinical data. Uncoupling features would be helpful in order for healthcare professionals to solely focus on clinical information necessary for the patient.

Cox, M. L., Risoli, T., Peskoe, S. B., Turner, D. A., & Migaly, J. (2021). Quantified Electronic Health Record (EHR) use by academic surgeons. *Surgery, 169*(6), 1386–1392.

<https://doi.org/10.1016/j.surg.2020.12.009>

This article analyzes the relationship between EHR and job burnout with healthcare physicians. Cox et. al discusses the tediousness physicians face entering in clerical data linked to the EHR leading to decreased job satisfaction. Although the EHR has contributed to improved care, physicians may be spending more time entering data into the EHR more than spending time with their patients.

Fritz, F., Balhorn, S., Riek, M., Breil, B., & Dugas, M. (2012). Qualitative and quantitative evaluation of EHR-integrated mobile patient questionnaires regarding usability and cost-efficiency.

International Journal of Medical Informatics, 81(5), 303–313.

<https://doi.org/10.1016/j.ijmedinf.2011.12.008>

This article compares the cost effectiveness of EHR mobile questionnaires versus paper questionnaires uploaded to the EHR system. A study was conducted between patients filling out mobile surveys on an iPad versus on paper and concluded that costs were lower for mobile EHR implementation as well as higher accuracy in answers from patients.

Nguyen, O. T., Turner, K., Apathy, N. C., Magoc, T., Hanna, K., Merlo, L. J., Harle, C. A., Thompson, L. A., Berner, E. S., & Feldman, S. S. (2021). Primary care physicians' electronic health record proficiency and efficiency behaviors and time interacting with electronic health records: A quantile regression analysis. *Journal of the American Medical Informatics Association, 29*(3), 461–471. <https://doi.org/10.1093/jamia/ocab272>

This paper observes the effects between physician burnout and the use of electronic health records. A study was conducted to assess the time physicians spent documenting in the EHR Epic system and measure four different variables: time spent using the system outside scheduled hours, writing notes, sending messages, and overall time spent in the system. Results concluded that physician burnout can be alleviated with patient assistance by uploading pre-questionnaire documents in patient portals to fill out prior to appointments. Another possible solution is to delegate tasks to clerical staff in order for physicians to spend less time, but further research may still need to be conducted.

Nicholas R. Webb, J. D. (2021, April 27). *Nursing informatics as caring: A literature review*. HIMSS. Retrieved January 6, 2023, from <https://www.himss.org/resources/nursing-informatics-caring-literature-review>.

This article discusses the relationship between nursing and informatics technology and its importance in patient care. Webb also discusses the significance of data and how it can affect a nurse's skill in decision making for a patient. Being able to train nurse leaders in technology provides an opportunity to find more accurate solutions and deliver improved nursing care.

Rose, C., Thombly, R., Noshad, M., Lu, Y., Clancy, H. A., Schlessinger, D., Li, R. C., Liu, V. X., Chen, J. H., & Adler-Milstein, J. (2022). Team is brain: Leveraging EHR Audit Log Data for new insights into Acute Care Processes. *Journal of the American Medical Informatics Association*, 30(1), 8–15. <https://doi.org/10.1093/jamia/ocac201>

This journal article analyzes the use of EHR audit log data in emergency departments to measure time to deliver tissue plasminogen activator (tPA) to acute stroke patients. Rose et. Al studies the different factors that affect the EHR system such as busyness in the facility and which team

members enter data in the system. This contributes to the accuracy of the EHR audit log data and how they can be tied to patient outcomes.

Uslu, A., & Stausberg, J. (2020). Value of the electronic medical record for hospital care: Update from the literature (preprint). *JOURNAL OF MEDICAL INTERNET RESEARCH*.

<https://doi.org/10.2196/preprints.26323>

This journal article discusses the value of electronic medical records and its importance in improving health care measures. Uslu & Stausberg study the effects and costs of EMR's on inpatient care and determine that it provides more insightful information on healthcare costs and utilization. These authors conclude that there are enhanced improvements in the quality of health care using EMR in patient care as well as cost containment by better health care measures.

Wang, S. J., Middleton, B., Prosser, L. A., Bardon, C. G., Spurr, C. D., Carchidi, P. J., Kittler, A. F., Goldszer, R. C., Fairchild, D. G., Sussman, A. J., Kuperman, G. J., & Bates, D. W. (2003). A cost-benefit analysis of electronic medical records in primary care. *The American journal of medicine*, 114(5), 397–403. [https://doi.org/10.1016/s0002-9343\(03\)00057-3](https://doi.org/10.1016/s0002-9343(03)00057-3)

This article conducted a study on the financial costs and benefits associated with the implementation of electronic health records. This study compared paper-based records versus electronic records and the costs linked with either method. The results of the study showed significant net profit over a five-year period within organizations using electronic health records.

