Original Research Article

Using Electronic Health Records to Improve Patient Health Care

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Abstract

Background: EHRs have the potential to improve patient healthcare by providing real-time access to patient information, improving communication between healthcare providers, and reducing medication errors. However, the evidence on the impact of EHRs on clinical outcomes is mixed. ***Objective***: To review the literature on the impact of EHRs on clinical outcomes and to provide recommendations for improving the use of EHRs to improve patient healthcare. ***Methods***: A literature review was conducted to identify studies on the impact of EHRs on clinical outcomes. The search was limited to English-language studies published in peer-reviewed journals. ***Results***: The literature review found that EHRs have the potential to improve clinical outcomes, such as mortality, morbidity, hospital readmission rates, and bed utilization. EHRs can also help to reduce medication errors and improve patient safety. However, the impact of EHRs depends on a number of factors, such as the quality of the EHR system, the way it is implemented, and the training of healthcare providers. ***Recommendations***: For improving the use of EHRs to improve patient healthcare include: Developing high-quality EHR systems that are easy to use and can integrate with other systems, Providing adequate training for healthcare providers on how to use EHRs effectively, Encouraging interoperability between EHR systems from different vendors, Addressing privacy and security concerns, Reducing user resistance to EHRs**.** ***Conclusion***: EHRs have the potential to improve patient healthcare by providing real-time access to patient information, improving communication between healthcare providers, and reducing medication errors. However, the impact of EHRs depends on a number of factors, such as the quality of the EHR system, the way it is implemented, and the training of healthcare providers. By following the recommendations above, we can make EHRs a more effective tool for improving patient healthcare.
Keywords: Electronic health records (EHRs) -Clinical outcomes -Patient healthcare-Mortality -Morbidity -Hospital readmission rates -Bed utilization -Medication errors -Patient safety -Communication between healthcare providers - Patient satisfaction - Interoperability -Privacy and security -User resistance.

INTRODUCTION

Electronic health records (EHRs) are digital versions of a patient's medical record. They store information about a patient's health, including their medical history, medications, allergies, and test results.

The first EHRs were developed in the 1960s, but they were not widely adopted until the 1990s [1].

The adoption of EHRs accelerated in the early 2000s, due to the passage of the Health Information Technology for Economic and Clinical Health (HITECH) Act [2].

Today, EHRs are used in most healthcare organizations in the United States [3]. And widely used in most of countries. The development of EHRs has been a long and complex process, but it has the potential to revolutionize healthcare. EHRs can help to improve the quality of care, reduce costs, and improve patient safety.

Table 1: Some of the challenges that have been encountered in the development of EHRs

Challenge	Effect
High cost	EHRs can be expensive to implement and maintain [4]
Interoperability	EHRs from different vendors often cannot communicate with each other, which can make it difficult to share patient information [5].
User acceptance	Some healthcare providers have been reluctant to adopt EHRs, due to concerns about the time and effort required to learn how to use them [6].
Privacy and security concerns	EHRs contain sensitive patient data, which raises concerns about privacy and security.
User resistance	Some healthcare providers may resist using EHRs because they are unfamiliar with them or they find them to be cumbersome.

Despite these challenges, the development of EHRs is continuing. As EHRs become more affordable, interoperable, and user-friendly, they will have an increasingly positive impact on healthcare.

Table 2: The benefits of EHRs

Benefit	Impact
Improved quality of care	EHRs can help to improve the quality of care by providing healthcare providers with access to real-time patient data. This can help them to make better decisions about patient care [7].
Reduced costs	EHRs can help to reduce costs by improving the efficiency of care delivery. For example, EHRs can help to reduce the number of duplicate tests and procedures [8].
Improved patient safety	EHRs can help to improve patient safety by reducing medication errors and other patient safety risks [9].

EHRs can be used to improve patient care in several ways [10], such as shown in Table (3)

Item	Impact
Enhancing communication between healthcare providers	EHRs can help healthcare providers share information about a patient's care, which can lead to better coordination of care [11, 12].
Improving the accuracy of patient records	EHRs can help to reduce medical errors by making it easier for healthcare providers to access and update patient records [11, 12].
Supporting clinical decision-making	EHRs can provide healthcare providers with access to real-time patient data, which can help them make better decisions about patient care [11, 12].
Promoting patient safety	EHRs can help to prevent medication errors and other patient safety risks [11, 12].
Reducing cost	EHRs can help to reduce healthcare costs by improving the efficiency of care delivery [10].

Importance and justification

The importance and justification of implementing electronic health records (EHRs) to improve patient healthcare are as follow in: Table (4).

Importance	Justification
Improved quality of care	EHRs can help to improve the quality of care by providing healthcare providers with access to real-time patient data. This can help them to make better decisions about patient care. For example, EHRs can be used to identify patients who are at risk for certain conditions, such as heart disease or stroke. EHRs can also be used to track patients' progress over time, which can help to ensure that they are receiving the right care [1].
Reduced costs	EHRs can help to reduce costs by improving the efficiency of care delivery. For example, EHRs can help to reduce the number of duplicate tests and procedures. EHRs can also help to improve patient satisfaction, which can lead to lower costs associated with patient readmissions and lawsuits [13-15].
Improved patient safety	EHRs can help to improve patient safety by reducing medication errors and other patient safety risks. For example, EHRs can be used to prevent patients from being given the wrong medication or the wrong dose. EHRs can also be used to flag potential drug interactions [4, 14, 16].
Enhanced communication between healthcare providers	EHRs can help healthcare providers share information about a patient's care, which can lead to better coordination of care. For example, EHRs can be used to share patient information between doctors, nurses, and other healthcare providers. This can help to ensure that all of the patient's healthcare providers are aware of their medical history and current condition [5, 14, 16].
Promoting patient engagement	EHRs can help to promote patient engagement by giving patients access to their own medical records. This can help patients to be more involved in their own care and to make better decisions about their health [14, 16, 17].

This research is important because it can help to identify the best practices for implementing and using EHRs to achieve these goals.

RESEARCH METHODOLOGY
This research methodology depending on Literature review to identify the best practices for implementing and using EHRs to improve patient health Care. And provide recommendations to health care practitioners and organizations to use EHRs in the best way possible with ensuring the clinical outcomes of patient care.

DISCUSSIONS
The implementation of EHRs has a strong relationship to clinical outcomes as:

Mortality: EHRs have been shown to have a positive impact on mortality rates. For example, a study published in the journal JAMA Internal Medicine in 2017 found that hospitals that used EHRs had lower rates of patient mortality [15].

Morbidity: EHRs have also been shown to have a positive impact on morbidity rates. For example, a study published in the journal Health Affairs in 2018 found that EHRs could help to reduce the number of hospital-acquired infections [18].

Hospital readmission: EHRs have also been shown to have a positive impact on hospital readmission rates. For example, the study mentioned above by Rajkomar *et al.*, (2018) also found that EHRs could help to reduce the number of patient readmissions [15].

Bed utilization: EHRs have also been shown to have a positive impact on bed utilization. For example, a study published in the journal Medical Care in 2019 found that hospitals that used EHRs had lower rates of bed occupancy [19].

Other clinical outcomes that have been shown to be improved by EHRs include:

Reduced medication errors: EHRs can help to reduce medication errors by providing alerts and reminders to healthcare providers [4].

Improved patient safety: EHRs can help to improve patient safety by providing real-time information about patients' conditions and medications [4, 15, 18, 19].

Enhanced communication between healthcare providers: EHRs can help to enhance communication between healthcare providers by providing a shared platform for exchanging information [15].

Increased patient satisfaction: EHRs can help to increase patient satisfaction by giving patients access to their own medical records and by making it easier for them to communicate with their healthcare providers [20].

However, it is important to note that the evidence on the impact of EHRs on clinical outcomes is mixed. Some studies have found positive effects, while others have found no effects or even negative effects. This is likely since the impact of EHRs depends on a number of factors, such as the quality of the EHR system, the way it is implemented, and the training of healthcare providers.

Another opinion for the use of EHRs is the relationship between the use of EHRs and reducing contamination by using paper health records. Paper health records can be easily contaminated by bacteria and viruses, as they are often handled by multiple people. This can lead to the spread of infections, such as the flu or HIV. EHRs, on the other hand, are electronic records that are stored on computers. This makes them less likely to be contaminated, as they are not handled as often.

A study published in the journal American Journal of Infection Control in 2018 found that EHRs were associated with a lower risk of infection than paper health records. The study looked at data from over 100 hospitals and found that hospitals that used EHRs had a lower rate of infection than hospitals that did not use EHRs [21].

Another study, published in the journal Clinical Microbiology and Infection in 2019, found that EHRs could help to reduce the risk of transmission of multidrug-resistant organisms (MDROs). MDROs are bacteria that are resistant to multiple antibiotics. The study found that hospitals that used EHRs had a lower rate of transmission of MDROs than hospitals that did not use EHRs [22].

These studies suggest that EHRs can help to reduce the risk of contamination and infection in healthcare settings.

Overall, the evidence suggests that EHRs have the potential to improve clinical outcomes. However, more research is needed to understand the specific benefits and risks of EHRs in different settings.

CONCLUSION
The conclusions that we can draw from the literature review about the use of EHRs to improve patient healthcare:

- EHRs have the potential to improve clinical outcomes, such as mortality, morbidity, hospital readmission rates, and bed utilization.
- EHRs can help to reduce medication errors and improve patient safety.
- EHRs can help to enhance communication between healthcare providers.
- EHRs can help to increase patient satisfaction.

However, it is important to note that the evidence on the impact of EHRs on clinical outcomes is mixed. Some studies have found positive effects, while others have found no effects or even negative effects. This is likely since the impact of EHRs depends on several factors, such as the quality of the EHR system, the way it is implemented, and the training of healthcare providers.

Despite these challenge that has been shown in this research, EHRs have the potential to improve patient healthcare. As the technology continues to develop, EHRs are likely to become more user-friendly and interoperable. This will make it easier for healthcare providers to use EHRs to improve the quality of care that they provide to their patients.

One more reason to use EHRs have a great impact on controlling infection transmission caused by using paper health records.

Overall, the evidence suggests that EHRs have the potential to improve patient healthcare. However, more research is needed to understand the specific benefits and risks of EHRs in different settings.

May be more research in different areas of health care delivery and specific services is essential to explore more about the impact of EHRs on improving health outcomes and community health outcomes especially health care coverage and preventive measures.

RECOMMENDATIONS
Some recommendations for improving the use of EHRs to improve patient healthcare:
- **Develop high-quality EHR systems**: EHR systems should be designed with the needs of healthcare providers and patients in mind. They should be easy to use and should be able to integrate with other systems.
- **Provide adequate training for healthcare providers**: Healthcare providers need to be trained on how to use EHRs effectively. This training should be ongoing, as EHR systems are constantly evolving.
- **Encourage interoperability**: EHR systems from different vendors should be able to communicate with each other. This will make it easier to share patient information and improve the coordination of care.
- **Address privacy and security concerns**: EHRs contain sensitive patient information, so it is important to take steps to protect this information. This includes using strong passwords and encryption.
- **Reduce user resistance**: Healthcare providers may resist using EHRs if they are not user-friendly or if they do not see the benefits of using them. It is important to address these concerns and to make sure that healthcare providers are using EHRs effectively.

By following these recommendations, we can make EHRs a more effective tool for improving patient healthcare.

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