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The Challenges of Transitioning From Paper to Electronic Medical Records

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Abstract---*The electronic medical record system is an essential instrument for enhancing healthcare by supporting improvements in patient care quality, patient safety, and cost savings via convenient access to medical data. Nevertheless, healthcare professionals' hesitant acceptance of the concept is accompanied by significant caution to guarantee its execution. The objective of this research was to ascertain the primary barriers to the adoption of the electronic medical record system as seen by doctors and nurses. A scoping study was conducted on scientific*

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literature accessible in Pubmed, Scopus, ProQuest, ScienceDirect, and Google Scholar to investigate the barriers to the acceptability of EMR systems. The scoping review included research that examined barriers to the use of the electronic medical record system by healthcare professionals. There are seven distinct categories of hurdles that have been identified: i. Technical ii. Financial iii. Time iv. Legal v. Organizational vi. Psychological, and vii. Social. The barriers most often cited were of a technical, financial, temporal, and legal nature. Furthermore, we also identified obstacles of an organizational, psychological, and social nature. The findings presented in this research may serve as a framework for the challenges that health professionals may encounter throughout the deployment process of the EMR system. EMR policymakers and facilitators must consider this on their own. Additionally, the poll highlights the need for policymakers to increase awareness of the fact that just eliminating technical, financial, time, and legal barriers is not enough to guarantee the successful adoption of the system.
Keywords---*Electronic Medical Records (EMRs), implementation, nurses, obstacles, patient health information, physicians, review.*

Introduction

An Electronic Medical Record (EMR) is a digital system used to gather, store, and display a patient's health and health-related information. It serves as a method for generating precise and structured documentation and for retrieving therapy data of particular patients. For centuries, medical records have been housed in a paper-based system, which has taken up a significant amount of space and caused delays in accessing appropriate medical treatment. However, electronic medical records (EMRs) save personal medical data digitally and allow all healthcare professionals in the chain to quickly access the information. This enables them to provide precise and dependable treatment (Boonstra & Broekhuis, 2010; Gabriel et al., 2014; Or et al., 2018; Wasserman, 2011).

The EMR system, as defined by the Institute of Medicine (IOM), encompasses several key functions and components. These include the ability to communicate patient results, write prescriptions, display comments, interact with other programs, request referrals, provide inpatient details, offer patient follow-up information, and maintain computerized chart records. In addition, it has features such as automatic transcribing help for responding to correspondence, which greatly benefits doctors and healthcare professionals in terms of written prescriptions and result notifications for reviewing and analyzing outcomes (Lærum et al., 2001; Mennemeyer et al., 2016; Zhou et al., 2009).

In recent decades, several nations have committed to implementing Electronic Medical Records (EMRs) on a national scale. This initiative aims to enhance healthcare systems and effectively address the health requirements of the population (AlJarullah & El-Masri, 2013; Kaneko et al., 2018). The Ethiopian Ministry of Health, similar to several other nations, acknowledges the significance of electronic medical records in enhancing the quality of healthcare. In 2013, the Ethiopian Ministry of Health introduced the Electronic Medical Record (EMR) system and intended to expand its use to all hospitals. However, only a limited number of health institutions have installed EMRs (Tilahun & Fritz, 2015).

Prior research has shown the many advantages of electronic medical records (Lee, 2017). The possible benefit mentioned is the continuous improvement of healthcare quality by enabling access to crucial patient medical data from various providers, which may have a significant influence on healthcare management (Jawhari et al., 2016; Lahti et al., 2014). Despite the identification of many benefits, later studies have shown that the complete implementation rank of the EMR is quite low (Al-Adwan & Berger, 2015; Yi, 2018; Farooqui et al., 2018). Recognizing the barriers that impact the acceptance of the system is therefore seen as one of the fundamental elements in ensuring its optimal integration into the healthcare system. The objective of the research was to provide the most reliable information about the barriers to the adoption of the electronic medical record system.

Obstacles

Insufficient technical training and assistance

A significant barrier to the adoption of EMR systems is the absence of adequate technical training and assistance, which is particularly evident in the subcategories of the technical component (Abramson et al., 2014; Mahalli, 2015; Jawhari et al., 2016; Singh & Muthuswamy, 2013; Or et al., 2018; Jamoom et al., 2014; Hamamura et al., 2017). This is mostly attributed to the fast advancement of health information technology, which enables the introduction of novel applications without any previous experience (Williams et al., 2017; Lakbala et al., 2014; Reganti et al., 2013).

The high incidence of rejection among medical professionals (Fragidis & Chatzoglou, 2018; Inokuchi et al., 2014; Biruk et al., 2014) may have been caused by a lack of training and expertise in dealing with new application-related concerns. Another hindrance, as identified in several studies (Williams et al., 2017; Inokuchi et al., 2014), is the lack of interoperability, which restricts doctors' capacity to share electronic information with other general practices or with the health information system they use.

Insufficient interoperability and system complexity

Meigs & Solomon (2016), examined how healthcare providers have expressed their discontent with the absence of interoperability enforced by government agencies, which hinders the progress of EMR development by suppliers and severely restricts the advancement of systems development in the field. Interoperability is crucial since it reduces the cost of Electronic Medical Records (EMR), enhances the spread and assessment of advanced medical knowledge among doctors, and makes the EMR system cheaper for individuals or small groups of physicians. Moreover, another technological challenge is the absence of flexibility in customization. Several studies have shown that doctors are reluctant to embrace electronic medical record (EMR) systems due to their failure to fulfil their particular requirements (Mahalli, 2015; Lakbala et al., 2014; Hooper et al., 2010). EMR system developers need to exert more effort in enhancing customizability to boost healthcare providers' inclination to use the system.

The initial and ongoing expenses

The deployment of electronic medical records (EMR) by healthcare providers is determined by the high costs associated with starting up and maintaining the system, as shown in earlier research (Abramson et al., 2014; Singh & Muthuswamy, 2013; Or et al., 2018; Jamoom et al., 2014; Williams et al., 2017). Adler-Milstein et al. (2014), found that hospital-based clinicians had a higher likelihood of using electronic medical records (EMRs) compared to physicians who have private practices. Private practice doctors are more inclined to cite high initial and recurring expenses as the primary barriers to using electronic medical record (EMR) systems. Our investigation found that 14 out of 21 studies indicated that the primary barriers to healthcare providers implementing EMR systems are the significant initial expenditures and ongoing maintenance expenses (Inokuchi et al., 2014; Gabriel et al., 2014; Khalifa, 2013).

Duration for acquiring proficiency in the system and inputting data

Physicians find it challenging to input the patient's record due to the additional time it takes since they are more used to working with summaries, handwritten notes, and histories. El Mahalli (2015), asserts that data entry in the EMR system is a laborious and onerous task for doctors due to the need for proficient typing skills for entering patient medical information, notes, and prescriptions. However, many physicians lack the necessary comfort and proficiency in this regard. Consequently, doctors often need a significant amount of time to input the patient's record, which hampers their capacity to interrupt the consultation and disrupts the continuity of the patient's treatment. Consequently, clinicians often encounter the problem of spending a significant amount of time inputting the patient's record (Lakbala et al., 2014; Reganti et al., 2013; Inokuchi et al., 2014).

Prior studies have shown that the introduction of EMR systems hampers the efficiency of doctors' tasks, as they need more time to familiarize themselves with the system. This results in a decline in their productivity and an increase in their workload. This disease may lead to financial losses, such as a decrease in income. Therefore, implementers must formulate strategies such as offering financial incentives for adopting electronic medical records (EMR), among other measures, to compensate for their early losses and motivate healthcare providers to implement EMR for sustained enhancement in their medical practice as well as financial and revenue expansion.

Concerns about privacy and security

The issues of privacy and security seem to have a substantial negative impact on the desire of doctors to use EMR (Abramson et al., 2014; Mahalli, 2015; Singh & Muthuswamy, 2013; Lakbala et al., 2014). Physicians are uncertain about the reliability of EMRs for preserving patient information because of the potential for illegal access, which might result in legal consequences and the loss of patient confidence. Most doctors who use EMR acknowledge that maintaining patient information in electronic medical records has a higher level of risk in terms of security and confidentiality compared to paper records. The clarity of doctors' perception of the decisive policies linked to the design and implementation of the EMR system is evident.

Jawhari et al. (2016), highlighted that inadequate policy and law may greatly affect doctors' perceived readiness to accept electronic medical records (EMR) and, thus, indirectly affect the overall success of EMR deployment. Physicians advocate for the government to establish thorough security and privacy standards for storing medical information. They also recommend that parties involved in implementing electronic medical record (EMR) systems, such as vendors and healthcare providers, strictly adhere to these regulations. By doing so, physicians believe that their concerns will be alleviated and their trust in the EMR system will be enhanced.

Corporate Culture

An EMR installation transforms the approach to patient care. The transition from paper records to an electronic system not only impacts patient treatment but also necessitates adjustments in organizational factors. Or et al. (2018), examined the difficulties that occur throughout the process of changing workflows, including a lack of motivation, a change in the culture of the organization, problems with implementation, and the establishment of barriers to enhancing the quality of care. Consequently, fostering a culture that is supportive of electronic medical records (EMR) may promote the widespread adoption of EMR inside the business and enhance the chances of a successful deployment (Sillence et al., 2007; Whiddett et al., 2006).

Summary

The findings presented in this research may serve as a framework for the challenges that healthcare professionals may encounter throughout the installation process of the EMR system. Therefore, it might be crucial for policymakers and implementers of Electronic Medical Records (EMR). The research suggests that policymakers should have a greater understanding that just eliminating technological, financial, time, and legal barriers is not enough to guarantee the use of the EMR system. Additional steps may be necessary. Potential interventions that may assist implementers in surmounting these hurdles. Nevertheless, it would be incorrect to deduce that there is a universally applicable path. EMR implementers and change managers must choose and determine appropriate actions based on their circumstances and context.

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