



Electronic Medical Record: The Way To Go (A mini Review)

⁴Mohammed Kabir Abubakar

Department of Surgery Bayero University & Aminu Kano Teaching Hospital, Kano

Abstract

An Electronic Medical Record (EMR) is an electronic record of health-related information of an individual that can be created, gathered, managed and consulted by authorized clinicians and staff within one health care organization. The records are electronically inputted, kept, processed and retrieved with the aid of electronic devices like computers, internet printers, mobile devices and other gadgets. Electronic Medical Record, helps to improve the flow of information, through electronic means, to support the delivery of health services and the management of health systems. The EMR was developed in 1972 by the Regenstreif Institute in the United States and was then welcomed as a major advancement in medical practice. The use of EMR in developing countries has been slow due to several reasons. In Nigeria, the government took a concrete step in 2019 by enacting the National Electronic Health Record Bill. The main deterrent to the quick adoption of EMR is the cost of implementation and maintenance. Understanding the specific clinical requirements of users and their limitations during system procurement, design and implementation is paramount to ensure system utility. In the surgical unit, EMR enhances patient surgical record retrieval. It enables surgeons to see records of previous procedures and investigations in real-time while performing surgery on a patient. Surgeons are able to directly communicate and share patient records with colleagues. Both the facilitators and barriers to EMR can be attributed to four broad factors that have been discussed. These are human, financial, organizational and technical factors.

KEYWORDS: Electronic, Medical Record, Surgery

Introduction

Electronic Medical Record (EMR) has been defined as an electronic record of health-related information of an individual that can be created, gathered, managed and consulted by authorized clinicians and staff within one health care organization (1). However, the importance attached to the patient having access to his or her health records has prompted other definitions that encompass the access of the patients to their medical records (2, 3). Electronic Medical Records (EMR), Electronic health information Systems (EHIS) and Electronic Medical Information systems (EMIS), Electronic Patients Record (EPR) have been used interchangeably (1, 2). However, the World Health Organization (WHO) has defined EHIS as the utilization of information and communication technology (ICT) to link healthcare service providers,

⁴ **Corresponding Email:** emkeabubakar@gmail.com

their patients and governments (2). What is paramount is that records are electronically inputted, kept, processed and retrieved with the aid of electronic devices like computers, the internet, printers, mobile devices and other gadgets. The main essence of EMR is to improve the flow of information, through electronic means, to support the delivery of health services and the management of health systems (4). According to Menachemi, and Column (5), EMR improves the accuracy and quality of health data records. It enhances physicians' access to a patient's healthcare data and enables seamless patient medical record sharing for immediate and continuing care. It improves care quality as a result of having health information immediately available at all times for patient care, improving the efficiency of the medical record service and containing healthcare costs (5). In the surgical unit, EMR enhances patient surgical record retrieval. It enables surgeons to see records of previous procedures and investigations in real-time while performing surgery on a patient. Surgeons are able to directly communicate and share patient records with colleagues.

History of Electronic Medical Record

Electronic Medical Record has come of age. The EMR was first developed in 1972 by the Regenstreif Institute in the United States and was then welcomed as a major advancement in medical practice (6). However, it did not get full acceptance until 2009 (6). In Nigeria, the government took a concrete step in 2019 by enacting the National Electronic Health Record Bill (7). As of present the adoption of this policy is largely restricted to Government institutions with slow implementation of EMR by private health institutions. These institutions also want to benefit from the numerous advantages of EMR. To what extent has this adaption improved or otherwise the services of this private health institution?

Challenges of Adoption of Electronic Medical Record

Like what happened globally, the adoption of EMR in Nigeria has been slow (8, 9) and agog with many challenges. The main deterrent to quick adoption of EMR is the cost of implementation and maintenance (1, 4, 10, 11). Other challenges hinder the implementation of EMR. These include increased workload, practical/technical information, technology issues, cognitive challenges, documentation issues, and concerns about understanding terminology/results/jargon (2, 4, 9, 12). Also, legal issues, power supply and corruption especially in developing countries have been identified as part of the challenges limiting the adoption of EMR (4, 9).

The challenges posed by these factors can be overcome through the following,

- ✧ Understanding the specific clinical requirements of EPR users and their limitations during system procurement, design and implementation (13).
- ✧ Targeting technology that is easily adaptable, efficient and gives satisfaction during clinical use (14).

- ✧ Continuous monitoring is important, especially with the utilization of server support Systems (15, 16, and 17).
- ✧ Robust, accessible channels of communication throughout implementation [16].
- ✧ Valuing user feedback (17).
- ✧ Transparent design of the application; and an incremental rollout of sophistication and use (6).
- ✧ Hands-on demonstrations of portals in the clinics should be done, to raise awareness, encourage understanding and use, and provide alternative access venues (e.g. kiosk) if home computers are not available(18)

According to Bisrat (19), both the facilitators and barriers to the adoption of EMR can be attributed to four broad factors. These are human, financial, organizational and technical factors.

Barriers/Impediments

This includes human factors like low staff awareness and resistance from the health workers, Lack of skills, lack of training and Workload on physicians. Non-availability of funds to set up and maintain EMR is also an impediment to the implementation of EMR. A low level of management commitment, poor project management, and resistance to change in an organization may also be a barrier to implementation. Other barriers to implementation are a lack of equipment and standard/certified EMR system, poor ICT infrastructure and slow network connection. Others are lack of technical expertise/IT, lack of system interoperability and integration, lack of ease of use and poor data security/vulnerability

Facilitators/Success Factors

These include Human factors like, management commitment, skilled manpower, change management and good project management. Others are long-term perspective, team spirit, training and follow-up, motivation, IT experts/system developers and Availability of advocates of EMR.

Availability of funds and Incentives can also facilitate the use of EMR. Money is needed to set up a good functional EMR system. Patients who adapt to the use of EMR can be given incentives like early appointments to see a doctor or free consultation. Incentives may also be in the form of infrastructure, equipment network speed hardware and standard software availability. Service delivery refers to the final outcome of various activities rendered by healthcare personnel in healthcare facilities in order to satisfy clients' needs (20). Service delivery can also be defined as a collective output of a series of care given to patients as either outpatient or inpatient in the hospital (21)

What Are the Benefits of Electronic Health Information System?

While EMR adoption has been slow, it can be said to have come to stay. Its benefit has been appreciated in both public and private institutions. The impact of EMR on service delivery has largely been studied in public health institutions in Nigeria. However private health institutions have also adopted the EMR as having a role to play in enhancing service delivery. The EMR has been shown to increase the productivity of healthcare providers and the hospital. It decreases the turnaround time in the management of patients (1) this was due to the improved access to new, recently stored, and archived information (22). Some researchers have reported that patients and caregivers believed that EMR is beneficial to and improves service delivery (1, 22). Likewise, it was found that the application of EMR can assist in the organization of patient's medical information and record keeping. It provided timely access to patient clinical information. The use of EMR provides decision-making support and also helps to manage the information that healthcare professionals require to perform tasks effectively and efficiently (23).

Graber, Byrne and Johnston (24) have outlined the following as the impact of EMR on diagnosis.

1. It enhances access to care
2. It provides access to patient information
3. It augments obtaining a reliable history and accurate physical examination
4. It enhances the organization and timely display of information
5. It provides decision support by making records and communications with colleagues readily available.
6. It provides tools and calculators to assist in clinical decision-making
7. It supports the intelligent selection of a testing strategy
8. It provides online guides to help select the most appropriate imaging modality
9. It facilitates access to key reference information and guidelines
10. It helps ensure reliable follow-up Reminders for patients about scheduled follow-up
11. It supports screening for preventive measure
12. It facilitates communication with the patient
13. It helps measure diagnostic performance and provides feedback

Similarly, Francis et al (25) in their review showed that with EMR, there were modest improvements in preventive care, work practice and disease management. While Clinical documentation showed the least improvement with EMR use (25). Overall eHealth technologies, especially ePrescribing and CDSS, appear effective in improving healthcare processes and outcomes across diverse settings using both commercially and locally developed systems (26). According to Vishwarnat (27), the larger impacts of the EMR on issues such as patient safety, communication and

confidentially, though central to public discourse and newspaper reports on EMRs, appear less important to physicians (27). The three most important areas of EMR impact were documentation of encounters, patient processing, and administration (27). The relatively high importance of these three issues reveals how EMRs are being conceptualized by physicians. One advantage of EMR is the ability of the patient to be able to access his or her medical records, The Benefits of this feature to the patient are to improved adherence to medication, patient satisfaction and safety, Enhanced patient-provider communication, reduced patient uncertainty and anxiety and Increased patient engagement (28).

Conclusion

Electronic medical records have come to stay. Though initially capital-intensive to set up, in the long run, it is more cost-effective and more efficient. The electronic medical record has the ability to compartmentalise care and is patient-centered. Communication between patient and caregiver and between caregivers is just a button away. The patient has full control of his or her records. It is imperative that all health institutions should adopt the EMR system. In a world where renewable energy and environmental protection are the new normal, the adaption of EMR will greatly reduce environmental degradation and advance the green revolution.

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