



## AN OVERVIEW OF ELECTRONIC MEDICAL RECORDS IN PROMOTING PRACTICES IN HEALTHCARE SETTING

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### Abstract:

The use of electronic medical records (EMRs) is widely believed to enhance medical efficiency and safety. However, there is a lack of consistent data from population-based research demonstrating enhanced healthcare quality as a direct result of EMRs. This narrative review aims to provide an overview of the effectiveness of electronic medical records in enhancing healthcare settings globally. It achieves this by examining the existing literature on the subject. The quality of healthcare is influenced by a variety of intricate and multifaceted factors. Efficient training is necessary during the EMR installation process to alleviate the workload on physicians and nurses and maintain productivity.

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**Introduction:**

Currently, the integration of information technology into the healthcare system is essential. Consequently, medical systems have seen many transformations, such as the shift from paper-based medical records to electronic medical records (EMRs). Electronic Medical Records (EMRs) are legally recognized documents that contain comprehensive patient data, including medical history, treatment plans, and patient evaluations [1]. Additionally, this electronic medical record (EMR) data holds significant value for conducting epidemiological research, clinical trials, drug safety surveillance, and disease registries [2].

The adoption of Electronic Medical Records (EMRs) offers numerous advantages for both patients and healthcare professionals. Patients can benefit from improved quality of healthcare systems, reduced errors, enhanced diagnosis and treatment, and faster healthcare decision-making. Healthcare workers, on the other hand, can experience increased information exchange, decreased expenses and time requirements, and the promotion of a safety culture among primary care providers [3]. Although there is widespread recognition of the significance of electronic health records (EHRs) and associated electronic medical records (EMRs) in the healthcare sector, the adoption of EMRs in Saudi Arabia remains sluggish, particularly in small and rural institutions [4].

Integrating EMRs helps expedite the healthcare delivery process at various care locations. For instance, they can expedite the process of requesting lab testing, radiological investigations, and pharmaceutical services. In addition, they can assist in the examination of charts. By utilizing electronic medical records (EMRs), the nurse or physician can acquire, assess, and archive laboratory and radiology findings, scan documents, and evaluate progress notes and communications [4]. In addition, they have the ability to generate a comprehensive medical record for the patient, facilitating immediate recognition of their concurrent medical conditions and previous and ongoing drugs. In addition, electronic medical records (EMRs) can enhance the clinical proficiency of healthcare practitioners by facilitating computerized clinical decision support (CCDS) for clinical decision-making. Benefits in this context encompass enhanced access to up-to-date clinical recommendations, notification of aberrant test findings, and alerts for medication allergies and interactions. Implementation serves another valuable function, which is documentation [5]. An Electronic Medical Record (EMR) often

includes a compilation of patient-specific medical issues, a comprehensive list of commonly prescribed medications, particular allergies pertaining to the patient, and instructions for the patient upon release. One significant benefit is the convenience of communication when healthcare providers may interact with patients by email, fax, and phone [5].

**Review:**

The extensive use of EMRs is expected to have a substantial influence on the caliber of medical records in surgical environments. Individuals working in the field of public health should collaborate on interoperability initiatives to ensure that electronic medical records (EMRs) are both widely adopted and fully compatible with each other. This would significantly improve the accessibility, accuracy, and comprehensiveness of data nationwide, as well as enhance the ability to compare and monitor disease patterns and prevention strategies [6]. Electronic Medical Records (EMRs) have the potential to enhance healthcare productivity and efficiency, resulting in improved public health outcomes. EMR applications of excellent quality in the field of health care serve as decision-support tools with the aim of reducing medical mistakes. Electronic Medical Records (EMRs) integrated with Health Information Technology (HIT) have the capacity to decrease healthcare expenses [7].

Nevertheless, published research has revealed certain deficiencies of Electronic Medical Records (EMRs) in this aspect. As an illustration, a study conducted by Holmgren et al [8] in the United States found that electronic medical records (EMRs) were ineffective in preventing almost one-third of potentially severe drug mistakes. In a cluster randomized controlled study including diabetic patients, it was shown that the implementation of CCDS did not lead to an improvement in the quality of primary care when compared to the standard treatment. Furthermore, a further study conducted by Kostopoulou et al [9] shown comparable levels of satisfaction among patients whose healthcare professionals utilized EMRs connected with Clinical Decision Support Systems (CCDS) and those who used regular EMRs. Similarly, a comprehensive analysis of research evaluating the effectiveness of CCDS in managing asthma determined that the current generations of CCDS systems do not offer substantial improvements in outcomes for individuals with asthma [9]. These findings indicate a significant disparity between the progress in health information

technology and the advancements in healthcare quality and outcomes [10]. Several recommendations were proposed to enhance the precision of CCDS systems. These include employing control datasets to validate the correctness and comprehensiveness of patient data, implementing data purification procedures, and refining the architecture of the medical process [11].

From a research perspective, converting paper-based data into electronic medical records (EMRs) offers a significant benefit. The Surveillance, Epidemiology, and End Results (SEER), National Inpatient Sample (NIS), and Medicare, which are extensive databases in the USA, have been able to take use of countrywide Electronic Medical Record (EMR) systems. These databases have a sample size of millions of patients. Not only is this crucial for clinical research, but it also plays a vital role in assessing health care policy and educating stakeholders on strategies to enhance access to top-notch health care [12].

Additional benefits associated with accessibility and management encompass the ability to manage and keep records of patient referrals. This enables healthcare professionals to access patient health records even when they are not in the hospital. Furthermore, it allows patients to access certain sections of their health records and provides data backup and disaster recovery mechanisms [12].

The implementation of EMRs is a gradual and intricate process that necessitates careful consideration of the learning and mastery of the entire information system by staff. Healthcare quality is determined by a mix of structures, procedures, and results. The outcomes are directly influenced by the qualities of both clinicians and patients. Prior studies on healthcare quality have largely overlooked two important factors: the fact that electronic medical records (EMRs) consist of numerous individual medical records, and that the order in which EMRs are implemented can have varying impacts on the behaviors of different medical staff, the timing of data recording, and the speed and complexity of the data import process [13]. Moreover, there is currently a lack of consistent findings on the correlation between the use of EMRs and enhancements in healthcare quality, even across different levels of hospitals. There is a lack of meaningful relationships between the extent of EMR deployment and the rates of death, readmission, and comorbidities. Among patients with diseases of moderate severity, the introduction of EMRs did not result in a drop in mortality. However, for patients with severe

illnesses, there was a notable reduction in mortality, with 1 out of every 100 patients seeing a decrease in mortality [13].

### Conclusion:

Electronic medical records (EMRs) enhance healthcare efficiency and foster patient safety by promoting health information technology practices. Prior research indicates that the use of Electronic Medical Records (EMRs) results in improved compliance with clinical standards, reduced instances of medication mistakes, and decreased occurrences of adverse drug responses. However, it does not have a substantial impact on death rates. The complete implementation of Electronic Medical Records (EMRs) enhances the quality of healthcare. However, a recent study conducted on a large population showed contradictory findings. It revealed that there is no clear connection between the adoption of EMRs and improvements in inpatient mortality, readmissions, and patient safety indicators, even after accounting for patient and hospital factors.

### References:

1. Zahabi M, Kaber DB, Swangnetr M. Usability and safety in electronic medical records interface design: a review of recent literature and guideline formulation. *Hum Factors*. 2015;57:805–834.
2. Ford E, Carroll JA, Smith HE, Scott D, Cassell JA. Extracting information from the text of electronic medical records to improve case detection: a systematic review. *J Am Med Inform Assoc*. 2016;23:1007–1015.
3. King J, Patel V, Jamoom EW, Furukawa MF. Clinical benefits of electronic health record use: national findings. *Health Serv Res*. 2014;49(1 pt 2):392–404.
4. Hillestad R, Bigelow J, Bower A, Girosi F, Meili R, Scoville R, et al. Can electronic medical record systems transform health care? Potential health benefits, savings, and costs. *Health Aff (Millwood)* 2005;24:1103–1117.
5. Menachemi N, Collum TH. Benefits and drawbacks of electronic health record systems. *Risk Manag Healthc Policy*. 2011;4:47.
6. Holmgren AJ, Newmark L, Danforth M, Classen D, Bates D. Assessing the safety of electronic health records: a national longitudinal study of medication-related decision support. *BMJ Qual Saf*. 2020;29:52–59.
7. Adane K, Gizachew M, Kendie S. The role of medical data in efficient patient care delivery: a

- review. *Risk Manag Healthc Policy* 2019;12:67–73.
8. Sujansky WV. The benefits and challenges of an electronic medical record:much more than a“word-processed”patient chart. *West J Med.* 1998;169:176.
  9. Heselmans A, Delvaux N, Laenen A, Van de Velde S, Ramaekers D, Kunnamo I, et al. Computerized clinical decision support system for diabetes in primary care does not improve quality of care:a cluster-randomized controlled trial. *Implement Sci.* 2020;15:1–14.
  - 10.Chen P-J, Lin M-C, Lai M-J, et al. Accurate classification of diminutive colorectal polyps using computer-aided analysis. *Gastroenterology* 2018;154:568–75.
  - 11.Goetz DG, Kuzel AJ, Feng LB, DeShazo JP, Love LE. EHRs in primary care practices:benefits, challenges, and successful strategies. *Am J Manag Care.* 2012;18:e48–e54.
  - 12.Shoolin J. Change management-recommendations for successful electronic medical records implementation. *Appl Clin Inform.* 2010;1:286–292.
  - 13.Likourezos A, Chalfin DB, Murphy DG, Sommer B, Darcy K, Davidson SJ. Physician and nurse satisfaction with an electronic medical record system. *J Emerg Med.* 2004;27:419–424