Opinion

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Abstract

Gone are the days when records of patients were kept in paper format. Majority of things going digital, it is inevitable that hospitals will adopt electronic medical record in near future. It is simple, reliable and cost effective in long term.

Key words: Clinical trial, electronic health record, EMR, medical record

Electronic medical record: Time to migrate?

INTRODUCTION

Electronic Medical Records, or EMR in simple terms, is a computerized medical record created in an organization that delivers patient care.\(^1\) This is a legal document and is owned by the care delivery organization (CDO). Electronic medical records tend to be a part of a local stand-alone health information system that allows storage, retrieval and modification of records. Electronic management of medical records, although still in its infancy stage in India, is turning out to be the latest trend worldwide. The competencies offered by this mode of health information management are considered to be highly relevant in both today’s and future scenarios. Of 1500 odd hospitals in India, very few have adopted some form of EMR. The hospitals that have moved on to digital records are mainly private corporate hospitals, some trust-run hospitals like SGRH, Delhi; AIMS, Kochi; and few state government hospitals on funding from State Health Projects.\(^2\)

ARE EMR AND EHR THE SAME?

Many consider EMR and Electronic Health Record (EHR) to be synonymous. They cannot be more wrong. EHR is more vast and incorporates vital components of EMR. EHR can be considered as the egg white that encompasses the egg yolk, which is the EMR. With the help of EHR, medical records can be easily shared by stakeholders like patients, employers, insurers, etc.\(^3\)

BENEFITS OF EMR

Adoption of EMRs will facilitate access to medical records across and within clinics and will allow rapid and continuous assessments of patients’ characteristics and service provision. It has been consistently pointed out that medical practice can be improved by reducing the medical errors that occur during treatment.\(^4\) Commonly, errors occur due to incomplete medical records, transcription mistakes or failure to correlate medical histories with current treatment decisions. Further, it was reported that although paper-based records are easier to create, they prove difficult to search, as in one of the studies where physicians could not find relevant information about the patient in traditional paper-based records in 80% of outpatient visits.\(^5\) Thus, the effective use of automation gives chance to practitioners to make decisions at every
level and treat patients to the best of their abilities. EMR environment is a complex and sophisticated environment, with its foundation being the clinical data repository (CDR) along with a real-time transaction processing database of patients’ clinical information for practitioners. Because the retrieval of data is easy, analysis can be done quickly and rapid assessment of a health programme or policy can be done in no time. In one study, the authors showed this benefit by analyzing the records based on EMR maintained in STD clinics. [6] The STD electronic medical record system, due to its flexibility of design and control over enhancements, was made to register, store and retrieve information in a highly clinically usable format. This enabled presentation of legible, completed and uniform data for easy analysis and decision making. Enabling staff to view and edit patient charts from multiple work locations improved information sharing and regular monitoring of clinical quality outcomes. Computerized clinical decision support system, alerts and reminders about individual patient and access to both recommended and alternate treatments ensured best of the provider’s practise in interest of patient care. Further, confidentiality of the information was maintained by installing various security features in the form of automatic log out of inactive sessions and agency-wide network security systems to prevent access by unauthorized individuals.

EMRs provide access to unprecedented amounts of clinical data for research that can accelerate the level of knowledge of effective medical practices. The evidence-based medicine will get the much needed boost. It is cost-effective as well. In a systematic review of PubMed and EBSCO business, looking for cost indicators of EHR implementations and their associated benefit indicators, the authors discovered the rapid capital-recovering process. On an average, the annual benefits were 76.5% of the first year costs and 308.6% of the annual costs.[7]

**EMR AND CLINICAL TRIAL**

EMR has immense role in each step of a clinical trial, right from designing of the trial to evidence-based clinical care. EMR helps in identifying the eligible patients from a list of patients suffering from a particular disease. It provides easy access to detailed clinical care data, which helps in formulating new clinical trial hypotheses.

There are challenges for the use of EMR in clinical trials. The investigator who chooses to enrol the patients based on the record has access to the whole medical history of the subject. There is no scope of blinding. Incorporating the information collected and interventions introduced during the clinical trial into routine EMR of the subject is another area of debate.

**ISSUES IN EMR**

Following EMR is a debatable issue. Many doctors are reluctant in this system as they feel that it will reduce the clinical productivity.[8] Some software uses strictly formatted or categorical fields to promote uniformity. This has been widely criticized for its restrictive framework, conveying limited or sometimes altered information due to structured approach and being resource intensive because of the demand of standardized and up to date clinical set of terms. Besides, this form of data entry is predicted to pose extra burden on caregivers as they will be required to extract precoded information from narratives. The other drawback of the system is absence of any account of the clinician patient experiences of electronic record use in clinical setting. This provides important insights regarding adaptability of an automated system’s rigidity to suit the fluid process of patient management. An important issue is the privacy of the patients. Because the health record of each patient on EMR is widely available, it can be misused.[9] Proper system should be in place to deal with this very important disadvantage of the EMR.[10]

**CHALLENGES IN IMPLEMENTING EMR**

Utility of EMRs, in spite of being widely acknowledged, pose several challenges in its adoption by both developed and emerging economies, including India. In India, information and communication technologies are increasingly becoming an integral part of inpatient, outpatient and administrative areas of healthcare. Standardization of interfaces to ensure interoperability and exchange of useful and clinically understandable health information is one of the potential issues. Although some form of clinical automation in health informatics has started, it is yet to be implemented in major ancillary departments like laboratory, pharmacy and radiology in most health care facilities. The pressing need of revolutionizing the health information system in India, in spite of being well recognized, is not backed by any assessment of proportion of doctors enthusiastic about embracing this form of technology. Several software packages are currently available in the Indian market that offer EMR along with Hospital Information System, but, unfortunately, there are only few takers as no serious effort is being made for educating the medical community about its benefits. Other nontechnical concerns are poor sociological conceptualization, fear of reducing the semantic richness of narratives to limited codes and weakly connected phrases[11] and increased possibility of communication errors between clinicians in acquiring, presenting and using information. All these demands substantial informatics effort to overcome the current paucity of a fully integrated, clinically useful electronic
records system. An important challenge in implementing EMR on a broad basis is “customization,” although it has its own share of disadvantages, like high cost of maintenance. Each healthcare environment functions differently, often in significant ways. It is difficult to create a “one-size-fits-all” EMR system.

**CONCLUSION**

EMRs enable the best possible use of our most precious health care resources, providing information about the patient we serve at the click of a mouse. It is rightly pointed out by Mr. Inderjith Davalur, CEO of Aosta Software Technologies, that “a large portion of the responsibility in advancing this electronic revolution in India rests upon its software community.”

Diversion of capital resources and by paying more attention to the needs of the medical community and gearing up to meet them is quintessential for the development and procurement of future medical informatics to prevent failure of any clinical information systems.

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