The Benefits and Limitations of Electronic Medical Files

Robert Ybarra*

Over the last several decades technology has taken an increasingly prominent role in most aspects of daily life. From how we shop to how we learn, technology has fundamentally altered the ways in which individuals interact with the world. The healthcare industry is no exception; entire new branches of medicine have been created, treatments devised, and services offered. Despite technology’s omnipresence, in one area of health care, technological adoption remains sluggish. Considering all of the technological innovations in treatment and research, the transition to electronic methods of storing and using medical records has been slow.

A recent national study published by the New England Journal of Medicine (NEJM) examines the prevalence of Electronic Medical Records (EMR) among different groups of physicians.1 As of early 2008, the study found that approximately seventeen percent of physicians in the United States use EMR systems.2 Of this seventeen percent, most have only basic systems; a mere four percent have fully-integrated EMR systems in their practices.3 The difference

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* Juris Doctor Candidate, Loyola University Chicago School of Law, Class of 2010. Mr. Ybarra is a staff member of Annals of Health Law.


2 Id. at 56.

3 Id.
between basic and fully-integrated systems is the lack of certain order-management functions and automatic clinical-decision feedback.\(^4\)

This article provides an overview of the benefits and limitations of EMR systems.

I. BENEFITS

EMR systems have the potential to significantly improve the healthcare system. As the proportion of physicians using EMR increases, the occurrence of preventable medical errors will decrease, the quality of patient care will improve, and costs to both physicians and patients will decline.\(^5\)

A. Reduction of Medical Errors

Evidence suggests that the adoption of EMR systems helps prevent medical errors. Each year approximately 98,000 deaths result from medical errors; of these, approximately 7,000 are caused by preventable medication errors.\(^6\) The NEJM study offers evidence that the risk of two common types of medication-related errors, the agitation of known drug allergies and accidental drug interactions, are reduced by EMR.\(^7\)

A physician with access to a patient’s EMR would be able to look at the entirety of the patient’s medical history, including whether the patient has suffered an adverse reaction to a drug in the past, and what medications the patient is currently taking.\(^8\) Also, even when the physician does not immediately recognize a potential drug interaction, EMR systems are often capable of issuing warnings regarding suspected interactions.\(^9\) In the NEJM study, physicians

\(^4\) Id. at 52.
\(^7\) DesRoches, *supra* note 1, at 54.
overwhelmingly reported that EMR systems helped to avert potential medication errors; of those physicians with fully-integrated systems, eighty percent averted a known drug allergy, while seventy-one percent prevented a potentially dangerous drug interaction.\textsuperscript{10} With physicians able to access complete patient histories and automatic system feedback on potential risks, they will make significantly less medical errors.\textsuperscript{11}

\textbf{B. Improved Patient Care}

Access to information is essential to providing quality patient care.\textsuperscript{12} Recognizing this, the Department of Veterans Affairs (VA) became early adopters of EMR systems.\textsuperscript{13} EMR created by VA physicians include information such as a patient’s prescriptions, lab tests, studies, consultations, reports, and progress notes.\textsuperscript{14} Access to this information improves patient care in that it allows for more accurate diagnoses.\textsuperscript{15} Also, access to an accurate history allows a physician to work efficiently, concentrating on the patient’s well-being instead of wasting time and resources performing tests that have already been conducted.\textsuperscript{16}

A complete and accurate patient history can provide a physician with insight into the significance of particular symptoms. In one reported instance, a patient’s EMR showed that he had suffered from a persistent symptom for a considerable amount of time and had recently undergone tests which ruled out certain diagnosis. As a result of this information, his treating physician was able to better tailor the patient’s treatment around the recurring symptom.\textsuperscript{17}

Further, physicians with access to comprehensive patient histories are able to avoid waste and increase efficiency. If a doctor knows that a patient has recently undergone a test, there is no need to repeat it, saving time and money for both

\textsuperscript{10} DesRoches, \textit{supra} note 1, at 54.
\textsuperscript{11} Lohr, \textit{Pressure to Computerize}, \textit{supra} note 5.
\textsuperscript{12} Litvin, \textit{supra} note 8, at 2455.
\textsuperscript{13} \textit{Id}.
\textsuperscript{14} \textit{Id}.
\textsuperscript{15} \textit{See Id}.
\textsuperscript{16} \textit{See Id} at 2454.
\textsuperscript{17} \textit{Id} at 2455.
parties. 18 In one example, a patient was admitted to an emergency room after being discharged from a different hospital. 19 Despite having received ten days of critical care, the only record of treatment provided was his discharge form, which consisted of “three sentence fragments and a one set of lab results.” 20 Unable to contact the discharging physician, the emergency physician had no alternative but to perform several tests that were already recently conducted. 21

C. Cost Reductions

Over time, the transition to EMR could reduce the cost of healthcare. 22 Although there is no conclusive evidence, studies suggest that switching to EMR systems could potentially reduce healthcare spending by five to ten percent or more, resulting in an estimated savings of eighty-one to one-hundred-seventy billion dollars each year. 23 These savings would result from increased efficiency and safety, a reduction in administrative costs, and the elimination of duplicative testing. 24 In a letter to the editor of the New York Times, one physician estimates that his recent switch to EMR will save his practice approximately $30,000 a year, while also improving patient safety. 25

II. LIMITATIONS

Several factors limit the potential benefits of EMR; in particular, the initial costs of implementation and concerns over patient privacy.

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18 Lohr, Pressure to Computerize, supra note 5.
19 Litvin, supra note 8.
20 Id.
21 Id.
22 Lohr, Electronic Health Records, supra note 9.
23 Lohr, Pressure to Computerize, supra note 5; Jennifer Fisher Wilson, Lessons for Health Care Could be Found Abroad, 146 ANN. INTERNAL MED. 473, 474 (2007).
24 Lohr, Electronic Health Records, supra note 9.
A. High Initial Cost

The initial cost required to implement an electronic record system poses the greatest limitation to widespread EMR adoption.26 In the NEJM study, sixty-six percent of physicians that did not use EMR claimed that the cost of adoption was a serious impediment.27 By most estimates, the cost to purchase and implement an EMR system can range from $15,000 to more than $90,000 per system, depending upon the difficulty of the integration.28 Support for the transition, however, is widely regarded as necessary, and in 2005 Medicare announced that it would give away the EMR software used by the VA.29 With the free availability of software, the total cost of installation fell considerably to approximately $10,000 to $12,000 for an entire medical practice.30

B. Privacy Concerns

In addition, privacy concerns limit the potential benefits presented by EMR systems.31 The optimal implementation of EMR involves the collection of patient information in a single, large database so the potential for abuse is great.32 One common concern is that private health information may be used to disqualify individuals from certain benefits.33 Also the security measures designed to safeguard the sensitive information of patients may prove inadequate.34

A common fear is that medical information will be used against the patient in some way. For example, many people believe that they could lose their health

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26 DesRoches, supra note 1, at 54-56.
27 Id.
30 Id.
32 Id.
33 Id.
34 Id.
insurance as a result of disclosure of information contained in their EMR.\textsuperscript{35} Others fear that their employers may limit job possibilities or find excuses to terminate the employment of employees suffering from expensive ailments.\textsuperscript{36} Although the \textit{Health Insurance Portability and Accountability Act} (HIPAA) makes such improper uses of medical information a federal crime, such regulations are rarely enforced.\textsuperscript{37} As of December 2006, approximately 22,000 complaints had been filed alleging violations of the HIPAA; of these, only three criminal cases were tried, and no civil fines were imposed.\textsuperscript{38}

The sufficiency of the security measures in EMR to protect patient information has been reasonably questioned. In 2006, a laptop containing the unencrypted medical records of 28 million patients was stolen from a VA official.\textsuperscript{39} The lack of encryption could have allowed an interested party to access the sensitive information, such as social security numbers and detailed health information. This danger compounds when medical records are available online. For example, an officer of VeriSign, an online security provider, researched the security of her own online medical files.\textsuperscript{40} She was disappointed to discover that it would be relatively easy to hack into the account.\textsuperscript{41} The officer’s experience highlights the need for reliable methods of authenticating the identity of users.\textsuperscript{42}

\section*{III. Conclusion}

Healthcare professionals generally agree that the implementation of EMR systems will benefit the healthcare industry.\textsuperscript{43} However, the potential for safer, more efficient care must be balanced against both the cost to the physician and the

\textsuperscript{35} Id.  
\textsuperscript{36} Id.  
\textsuperscript{37} Freudenheim & Pear, supra note 31.  
\textsuperscript{38} Id.  
\textsuperscript{39} Id.  
\textsuperscript{41} Id.  
\textsuperscript{42} Id.  
\textsuperscript{43} Lohr, \textit{Pressure to Computerize}, supra note 5.
privacy concerns of individual patients. Finding a balancing point on this critical issue is no small task; however, in this time of technological permeation, it is a crucial one.