

Medical Electronic Devolution

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The Letter

The hype in the 1980s promised that computers were going to make our lives easier. Computers and artificial intelligence (AI) were supposed to revolutionize medicine. In some areas they have: a 2019 article in *Lancet Neurology* detailed results showing “long-term activation of a 4-limb neuro-prosthetic exoskeleton by a complete brain-machine interface system using continuous, online epidural ECoG (Electrocorticography) to decode brain activity in a tetraplegic patient.”¹ Having laboratory information and radiologic studies available at your fingertips is also a wonderful application of this technology, as is the ability for physicians to send most prescriptions electronically to a pharmacist, who can also now track patients digitally.

I graduated osteopathic medical school in 1989 and did not contend with computers for most of my training; the first publication from the Institute of Medicine on computer-based patient records was in 1991.² Cost was a prohibitive factor in early expansion of the electronic medical/health records, but as more hospitals came online, the Health Insurance Portability and Accountability Act (HIPAA) of 1996 was passed. As of July 2017, electronic health records (EHR) were being used by 86% of offices and 80% of hospitals had adopted a certified EHR.³ Later, the Health Information Technology for Economic and Clinical Health Act of 2009 provided \$27 billion of federal incentives, prompting doctors to quickly adapt to the EHR.

I can remember performing rounds in the hospital as a 3rd or 4th-year student; if there was an interesting case on another team, I went to the paper chart and read about the case. During my residency, computers were only used for placing orders and retrieving lab values. During my fellowship, computers advanced to a degree that we could look at radiological studies digitally rather than lugging several pounds of film from the radiology suite, if in fact the studies could be located. Later, as an attending, I would often admit patients to my service and leave the service before I knew the outcome from our initial assessment of the patient. I would keep the medical record numbers of these patients and in a week or so, I would look into their EHR to see whether my initial diagnosis was correct, what the treatment was, and how the patient responded. Technically, this was in violation of HIPAA policy, but seemed logical to someone wanting to learn more about medicine.

Fast-forward to 2019: were the wonderful advances of computers in medicine a success? A recent study in *Mayo Clinic Proceedings* gave the results of a research project from Stanford, Mayo, and the American

Medical Association (AMA).⁴ They surveyed over 5,000 physicians every 3 years on topics related to physician burnout. The burnout rate for physicians was 43.9% compared to 28.6% in the general population. The study also found that physicians spend 1-2 hours on medical records and paperwork for every hour spent with patients, and an additional 1-2 hours daily of personal time on medical records-related activities. The usability scale score went from a high of 93% for Google to a low of 45% for EHR, which gave it an “F” grade. The top 3 major causes of physician burnout were 60% for bureaucratic demands, 34% for long hours, and 32% for EHR. In terms of the EHR, the main contributors to the high burnout score were the emotional exhaustion score and the depersonalization score.

In addition, EHR data breaches are escalating. In a November 2019 article in *The Guardian*,⁵ a Google employee became a whistleblower about medical data transfer wherein the company made a deal with Ascension Healthcare to have 50 million medical charts transferred to Google. Neither patients nor physicians were aware of the deal and the medical records were not de-identified, so not only was the medical data transferred but patients’ names and addresses were also attached. In contrast, I was recently on a disciplinary board where a medical student was punished for looking into an EHR for a case in which he was not directly involved. As stated above, I have no problems with medical students or physicians reading other patients’ medical records, as long as it is for medical education and not for personal gain or notoriety. It seems that if one person violates the medical privacy rights of a patient he is chastised and punished, but if a global multi-billion-dollar company with 114,096 employees violates the medical privacy rights of 50 million individuals, there are no significant consequences.

I know that we will never eliminate electronic health records and cases of people and/or companies downloading medical information for profit, but I would encourage medical students and physicians to stand up for medical education and have HIPAA reflect the positive aspects of accessing electronic medical records for educational purposes. In my opinion, there should be some legal reform to reflect the inadequacies of the electronic health record and the balance of the educational value to the medical student.

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Editor: Francisco J. Bonilla-Escobar

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Copyeditor: Adam Dinoff

Proofreader: Judie Joo

Layout Editor: Anna-Maria Chantaliyska

Submission: Mar 14, 2021

Acceptance: Apr 9, 2021

Publication: Apr 30, 2021

Process: Peer-reviewed

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Acknowledgments

None

Conflict of Interest Statement & Funding

The Authors have no funding, financial relationships or conflicts of interest to disclose.

Author Contributions

Conceptualization: MJO; Data Curation: MJO; Formal Analysis: MJO; Funding Acquisition: MJO; Investigation: MJO; Methodology: MJO; Project Administration: MJO; Resources: MJO, LB; Software: MJO; Supervision: MJO; Validation: MJO; Visualization: MJO, LB; Writing – Original Draft Preparation: MJO; Writing – Review & Editing: MJO, LB.

Cite as

Olek, MJ, Bui, L. Medical Electronic Devolution. *Int J Med Students.* 2021 Jan-Apr;9(1):92-3.

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ISSN 2076-6327

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