Unintended consequences of the electronic medical record on physicians in training and their mentors

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ABSTRACT
For physicians in training and their mentors, the process of learning and teaching clinical medicine has become challenging in the electronic medical record (EMR) era. Trainees and their mentors exist in a milieu of incessant box checking and laborious documentation that has no clinical educational value, limits the time for teaching and curtails clinical cognitive skill development. These unintended consequences of the EMR are juxtaposed against the EMR’s intended benefits of improved patient care and safety with reduced medical errors, improved clinical support systems, reduced potential for negligence with clinical data and metadata data supporting compliance with the standard of care. Although the mindset was technology would be the solution to many healthcare issues, there was not an appreciation of the cumulative impact of the non-educational workload on physician time and education. The EMR was intended to improve the efficiency of medical care and time management. It appears that the unintended consequences of the EMR with numerous checkboxes, automatic filling of computer screens, pre-worded templates, and automatic history and physical examination functions with detailed administrative oversight and compliance monitoring were not appreciated, and many believe that burden has overwhelmed the intended benefits of the EMR. This juxtaposition of the intended and unintended consequences of the EMR has left trainees and mentors struggling to optimise medical education and development of clinical skills while providing high-quality patient medical care. Physician educators must identify how to use the benefits of the EMR and overcome the unintended consequences. A major unintended consequence of the EMR is time dedicated to automate functions that detract from the time spent with mentors and patients. This time loss has the potential to restrict the physician from meeting the essential canons of medical informed consent and interfere with a physician meeting her fiduciary duties to the patient. To raise awareness and stimulate a search for solutions that benefit medical education and patient care, we will explore the intended and unintended consequences of the EMR and potential solutions using the intelligent systems of the EMR.

INTRODUCTION
Physicians in the USA encounter a daily workload that is challenging from a time perspective. The additional time constraints introduced by the electronic medical record (EMR) reduce the time for mentors to teach young physicians. This has the potential to diminish the learning curve of physician trainees.

Every new policy regarding the introduction of technology in the healthcare systems should be evaluated to determine the impact on the education of young physicians, the ability of mentors to educate and the effects on patient care. Ensuring manageable opportunities for optimal education and patient care is a shared responsibility among all healthcare organisations.

THE EVOLUTION OF OUR PRESENT HEALTHCARE SYSTEM
Physicians have observed a healthcare system evolve into an information technology highway that defies the speed limit of most physicians’ learning curves. The HITECH ACT of 2009 endorsed grants and incentives totaling billions of dollars to stimulate ‘meaningful use’ of EMRs by healthcare professionals.1

The intended benefits of the EMR2 created euphoria in the healthcare world. Health policy gurus promised the EMR would improve many aspects of healthcare including

► Improved data analysis and management.
► Improved documentation.
► Improved clinical decisions with integrated clinical decision support systems.
► Clinical data and metadata establishing evidence of compliance with the standard of care.
► Meeting the standard of care would reduce allegations of negligence.
► Ultimately, improved patient care and safety.

These intended consequences have merit and have improved many aspects of clinical care.

THE UNINTENDED CONSEQUENCES OF THE EMR
Apparently the unintended consequences of the EMR3 were not appreciated before its introduction. Time has taught us that there were costs to trainees, mentors and patients that were inherent to the ‘efficiencies’ of the EMR. The EMR included a panoply of ‘time-saving’ check boxes; automated history and physical examination functions, pre-worded templates, and automatic history and physical examination functions with detailed administrative oversight and compliance monitoring were not appreciated, and many believe that burden has overwhelmed the intended benefits of the EMR.

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The efficiency measures are appealing for technologically shrewd trainees to save time, as well as for staff physicians trying to meet the high relative value units (RVU) production quotas demanded by employers.4 The unintended cost of this technological efficiency is that training physicians may not learn how to appropriately perform a detailed history and physical examination, interact with the...
patient and family, and take the time to construct a broad differential thought process.

The time used by trainees and mentors to meet the demands of the automated functions of the EMR limits the time the mentors have to educate and mentor trainees. The time deficit interferes with the fiduciary duties of the mentor to the trainee. Time is necessary to educate trainees and what we have learnt is there are no short cuts.

These concerns arise because, since the introduction of the EMR, many physicians in training often document their initial patient encounter by clicking required boxes and then ‘copy and paste’ information that others had completed during prior encounters. The cost of this expediency in patient evaluations must be re-evaluated comparing the elicitation of new health information against the technological efficiency.

This is a real concern because recent data suggest a high rate of copying and pasting of many elements of medical documentation. Recent surveys identify that 25% of notes contain copy and pasted physical examination. This defies the concept that young physicians should consider the medical note as a thoughtful description of the patient encounter where there is an integration of a comprehensive history, physical examination and critical analysis of the differential diagnosis. In today’s fast-paced medical world, clinicians are constantly facing time constraints. EMR-unintended functions have the potential to impede the medical education of trainees and the medical care of patients.

THE UNINTENDED CONSEQUENCES OF COMPLIANCE/UTILISATION REVIEW/MAXIMAL BILLING

The EMR was envisioned with many potential advantages as discussed, but few disadvantages were penned or discussed. The HITECH ACT, which was ushered in by the federal government, envisioned a methodology of tracking every aspect of medical care from patient encounters to billing. The EMR is often believed to achieve optimal compliance with utilisation reviews’ recommendations for optimum billing practices. It is less optimal in promoting optimal discussion of patient care.

The EMR allows and facilitates tech savvy users to save time on notes by copying and pasting information from one day’s note (or month’s or year’s) to the next or by using templates that insert medication lists, labs and vital signs without protections that actually ensure the material has been carefully read and critiqued. There is no check and balance system to guarantee the note accurately reflects the patient’s condition and course of treatment. It is common knowledge that in clinical practice imprecise, erroneous information has been copied and forwarded, or that incorrectly entered metrics infiltrates the medical record. These unintended consequences greatly impact trainee learning and patient care.

THE MEANING OF INFORMED CONSENT IN THE EMR ERA: COMPETENCIES IN PATIENT CARE AND PROFESSIONALISM

Medical informed consent is essential to the physician’s ability to diagnose and treat patients, and to the patient’s right to accept or reject clinical evaluation, treatment or both. Medical informed consent should be an exchange of ideas that buttresses the patient–physician relationship. The consent process should be the foundation of the fiduciary relationship between a patient and a physician. Physicians must recognise that informed medical choice is an educational process and has the potential to affect the patient–physician alliance to their mutual benefit. Physicians must give patients equality in the covenant by educating them to make informed choices. When physicians and patients take medical informed consent seriously, the patient–physician relationship becomes a true partnership with shared decision-making authority and responsibility for outcomes.

Physicians need to understand informed medical consent from an ethical foundation, as codified by statutory law in many states, and from a generalised common-law perspective requiring medical practice consistent with the standard of care. It is fundamental to the patient–physician relationship that each partner understands and accepts the degree of autonomy the patient desires in the decision-making process.

Informed consent as a component of the fiduciary responsibility can only be realised through a caring and trusting doctor–patient relationship dependent on time spent engaging and connecting with the patient. The EMR may impact the time spent with patients. A 2013 study suggested interns spend 40% of their time with the computer and approximately 10%–12% in direct patient engagement. This allotment of time does not foster the crucial goals of empathic communication and the development of strong clinical judgement based on seeing and touching the patient. This appears to have the potential for downstream degradation of competencies in patient care and professionalism. This potential for degradation of patient care has the potential for physician liability. Time is essential to clear, concise communication, informed shared decision. The minimal time allotted to direct patient engagement is concerning. It may interfere with physicians meeting their duties as a fiduciary. The inevitable time constraints introduced by the EMR must not constrain the fiduciary relationship between mentor and trainee and between physician and patient.

Fortunately the EMR contains the seeds to the solutions for overcoming the unintended consequences of the EMR. The EMR is an intelligent system that has the potential through automated functions to prevent trainees from using copy/paste function, prevent automatic filling of computer screen fields and monitor the time spent developing a thoughtful and deliberative integration and synthesis of patient information. Ultimately the mentor must address the trainee’s assessment and understanding of the patient clinical conditions.

THE PHYSICIAN EDUCATOR

Mentoring physicians must consider the methods that can be employed when using the EMR to optimise the clinical experience for the patient and the training physician. Perhaps physicians in training should be required to update mandatory fields, create original physical examination notes after each encounter and incorporate labs and imaging studies in a manner that ensures thought and consideration. There should be a prerequisite to produce a newly prioritised differential thought process, assessment and strategy for each encounter. The question we must ponder is do the EMR’s promised benefits come at the expense of the training physician’s ability to identify nuanced details of the patient interaction or a missed diagnosis because of the copy and pasted physical examination?

THE FUTURE OF MEDICAL TRAINING

There are many pressures confronting medical education and medical care in general. The existing healthcare cost conundrum is the nidus of many of the issues we encounter in medicine. Despite this reality, we as educators must accept the responsibility to eliminate poor practice patterns, develop alternative approaches and standards to optimise patient care, and create expectations that promote optimal patient care and physician training. The paradigm we develop must foster accountability
and professionalism. The integration of EMRs into our daily medical practice cannot come at a loss of the fundamentals necessary to having a shared patient–physician partnership.

The goal of all physicians must be to take advantage of all benefits of the EMR and overcome the unintended consequences of our evolving technologies so that we can maximise medical education and patient care. The first step is recognition of the unintended consequences we seek to surmount, and the second step is the development of practical solutions to the unintended consequences. We must use the smart systems embedded in the EMR to optimise trainee education and patient medical care.

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