

Brief Review: Dangers of the Electronic Medical Record

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In 2009 then president-elect Barack Obama said he planned to continue the Bush administration's push for the federal government to invest in electronic medical records (EMR) so all were digitized within five years. "This will cut waste, eliminate red tape, and reduce the need to repeat expensive medical tests," he said, adding that the switch also would "save lives by reducing the number of errors in medicine"(1). Now over 5 years on, it might be time to examine how EMR has impacted medicine.

Historically, similar arguments were made by Dr. Ken Kizer, then Undersecretary for Veterans Healthcare Administration (VHA), 20 years ago (2). As a physician who practiced the VA at the time, my colleagues and I welcomed EMR. It had to be better than a system where neither the chart nor the x-rays were available for pulmonary clinic most of the time (Robbins RA, unpublished observations). EMR improved this. In general, x-rays and records were available and I have little doubt that this improved healthcare. However, it came at a price. It's the later that is discussed in this review.

Waste and Red Tape

Elimination of waste and red tape are good things. However, does the EMR eliminate either? Most articles have been similar to Buntin et al. (3) who point out that "92 percent of the recent articles on health information technology reached conclusions that were positive overall". However, most represent a series of opinions, usually of healthcare administrators, rather than data. Studies which have examined efficiency data have not found such an improvement (4).

My experience suggests that EMR actually creates waste of practitioners' time and increases red tape. The collection of the required superfluous information detracts from patient care. Asking every patient at every visit a family history, review of systems and reentering past medical history and surgical history is very unlikely to produce any new clinically useful information and detracts from practitioners focusing on the patient's problem. The recent VA scandal resulted from a performance-measurement system through the EMR that had become bloated and unfocused requiring the recording of multiple measures (often tied to administrative bonuses) of dubious or meaningless significance (5,6). These additional clerical tasks contributed to too few physicians being unable to care for too many patients. The private setting has become similarly afflicted. Performing the ever increasing meaningless measures required for reimbursement by Centers for Medicare and Medicaid Services (CMS) or other third party carriers is resulting in similar detriments in care and will likely result in outcomes similar to the VA.

In addition, the data must now be recorded on a template that is easily electronically retrievable. This saves third party clerical time because the clinic notes do not have to be abstracted. However, the clerical burden now falls onto the physician or office staff. It usually means the data is entered at least twice-once on the clinic note and once on the template. Everything from smoking to electronic prescriptions must be entered on a template. Sometimes this actually saves time but at others it is horribly detrimental. For example, yesterday my practice administrator and I spent 15 minutes trying to electronically send prescriptions to a local Walgreens pharmacy mostly because we could not electronically locate the store although we had the address and phone number. With the addition of these requirements, it now takes longer, in many cases much longer, to type the note and enter the data than it does to see the patient. This is driven by a requirement for the data to be entered in an EMR in order to receive reimbursement.

There are multiple commercially available EMRs. Each system may have its some unique issues and problems. The fact that institutions may decide to change from one EMR system to another, based on a number of factors, can have significant stress on the providers and may impact overall quality of care and safety during the “learning curve” to adapt to a new EMR. Even if the system stays with one product, there are frequent “upgrades” that require learning new processes. There is a limit to how many updates and changes can be effectively learned by physicians and other providers while maintaining efficiency. These issues need to be understood by health care administrators.

Duplicate Testing

It makes some sense that if results are available electronically that duplicate testing could be reduced. Unfortunately, the reality is that although the data might be recorded electronically, it is often not available. The various computers do not necessarily “talk” to each other and even when they do, retrieving the data can be problematic because of the multiple security hoops that need to be jumped through (remember HIPPA). Furthermore, sometimes the data is substandard. Yesterday, I saw a patient with COPD from smoking, a recurrent rectal carcinoma and a CT-PET scan positive for a 1 cm enhancing mass in the right upper lobe according to the radiologist. Yet, I could see no lesion on the small image that I could view on our computer. I decided the safest course of action was to repeat the test in 3-6 months. Had I been able to review an adequate image, the need to repeat the test might have been avoided. Similarly, other x-ray, laboratory and other data is frequently inaccessible.

CMS is largely responsible for this oversight. Although the federal government has spent over 30 billion in tax dollars since 2009 implementing EMRs, they are not standardized across facilities (7). Similar problems occurred at the VA. Although it was one computer system, multiple vendors who supplied radiology, pulmonary function, and other equipment were electronically incompatible with the VA system.

Save Lives By Reducing the Number of Errors in Medicine

This may eventually prove to be true, but the available data suggest that at least initially the opposite may be true at least for computerized physician order entry (CPOE). For example, a survey of the house staff at the University of Pennsylvania found that a widely used CPOE system facilitated 22 types of medication errors (8). More disturbing is data that mortality increased from 2.8% to 6.6% after CPOE implementation in one pediatric intensive care unit (9). Other studies have failed to demonstrate such an increase in mortality (10).

Unavailability of the EMR

It seems rather obvious but EMRs have to be as dependable as other electronic records such as banks. Unfortunately, this is usually not the case. For example, the VA system would periodically crash. Trying to care for a patient when no data is available and no orders can be written is problematic. Incidentally, the problem of the periodic crashes was because local administrators refused to increase the server capacity at the Veterans Integrated Service Network level (EMRs can utilize huge amounts of memory) until the system did crash. There seemed no consequences to those responsible when the EMR was unavailable.

Unauthorized Access to Patient Information

Equally obvious is data stored in EMRs is vulnerable to unauthorized access just as computers from the Pentagon, banks, Target and even Sony pictures have all been hacked. It seems unlikely that the data in the EMR is as well protected as military or financial data especially given the large numbers with access to the data and the need to access the data sometimes quickly in emergency situations. Interestingly, large breaches in EMRs at the VA seemed to have occurred not through healthcare professionals but through information technology (IT) or administrative personnel (11).

Rarely, medical computers are hacked with the intent of extorting money. The hacker encrypts the files and then demands money to unencrypt the data (12). Some physicians' offices who have been hacked now keep two sets of data, one electronic and another paper not only cancelling most of EMR's advantages but resulting in the time and effort of keeping two record systems.

Health Care Professionals Spending Less Time with the Patient

Although physicians complain about the time required to complete various aspects of the EMR (in my view justifiably), observations in the hospital suggest nurses may be even more affected. A never ending list of documentation facilitated by the EMR have robbed many nurses of what they found most satisfying about their profession, bedside nursing (13).

Poor Understanding of the Medical Record

Poor understanding of patient data remains a significant problem for everyone from the patient who may find the record confusing and frightening to the healthcare administrator who is not trained or skilled in the practice of medicine. A number of medical practices are utilizing “patient portals” in their EMRs that allow patients to review their records online. The knowledge that a patient will be able to review all information entered in their record seems likely to have an effect on physician documentation, particularly in certain areas such as potential substance abuse, mental health issues, or malingering. Review of the record by the patient may also create challenges in patient care. For example, a patient who has read a radiology report that states “malignancy cannot be excluded” may question a decision by the clinician not to do a biopsy because the risks of further testing or biopsy are not justified by what may be a very low likelihood of malignance. Confusion can result in numerous bad outcomes, but usually for the patient and/or the practitioner. These are all new issues and the impact overall on patient care and the doctor-patient relationship are not clear.

Control

This might be the largest potential danger and most contentious aspect of the EMR. It revolves around who owns the medical record. Some believe patients should own their record, and similarly, administrators, CMS, insurance companies and practitioners all believe that the EMR should be theirs, at least in part (14). Consequently, there are conflicts regarding what should and should not be recorded. Although this argument is far beyond this brief review, the implications are far-reaching and important.

Regardless of who is the ultimate owner of the medical record, it is quite clear that administrators in the hospital and large clinics and CMS and insurance companies can dictate both the content and form. Furthermore, it is quite easy to place requirements to complete the records or receive reimbursement. For example, completion of CMS' most recent "meaningful use" measures can be required for reimbursement, and similarly, information might be required before a document can be signed. This might be reasonable unless the requests are busywork or for predominately useless information. This can detract from the usefulness of the medical record. For example, at one hospital where I practiced there was an excellent gastroenterology department. They used a computer generated report for their procedures that usually resulted in about 5 typed pages. It satisfied all CMS, insurance company, JCAHO, and professional standards. However, it was difficult (some of my colleagues said impossible) to read and interpret timely and efficiently. Increasingly, we see office reports, consults, history and physicals, radiology reports, laboratory reports, and discharge summaries which approach the length of a Dostoyevsky novel and have little utility in conveying information useful in patient care. Furthermore, should any part of the medical tome be missing (remember bundles), CMS and insurance companies will gleefully deny payment while healthcare administrators will harass both nurses and physicians to complete the medical record according to CMS and the insurance company mandates.

This results in practioner inefficiency. However, the solution is usually to hire more administrative personnel to make sure that the practioners work even harder and longer further decreasing efficiency both medical and administrative inefficiency.

Not usually mentioned as a danger, although it should be, is that the EMR can be alerted by the unscrupulous who may control the EMR. For example, Sam Foote told me a story that while at the Phoenix VA, he could place a request for back magnetic resonance imaging (MRI) but would later find that the order removed. At the time the hospital had overspent its fee basis budget and was actively discouraging the ordering of MRIs. Furthermore, we have seen radiology reports altered when a misreading was discovered without evidence of the original misreading present (Robbins RA, unpublished observations).

Conclusions

EMRs represent a potential boon to patient care and providers, but to date that potential has been unfulfilled. Data suggest that in some instances EMRs may even produce adverse outcomes. This result probably has occurred because lack of provider input and familiarity with EMRs resulting in the medical records becoming less a tool for patient care and more of a tool for documentation and reimbursement.

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