Electronic Medical Records—A Perspective: How Long Does It Take to Read a 243-page EMR?

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Medical Records in Our Office

For the past 20 years, our pulmonary office has used what I consider to be a simple digital or computerized medical record—an electronic medical record (EMR). By the late 1980s, my associates and I had seen about 29,000 pulmonary consultations. We used a numeric filing system in which the first number would tell us whether the consult originated in the hospital, in our office, or as a referral. We used a card file to access patient records. We didn't see this as unusual since, when we went across the street to the hospital, we used their card file to find the hospital number in order to pull the patient record.

After 20 years, the volume exceeded the numbers available for each category and the system became unmanageable. The card catalog became extensive and had to be replaced with a computer. By then, computers had become ubiquitous. Computers could be kept close at hand, allowing us to identify the patient's number and pull the correct chart. When the chart had served its purpose, it could be re-filed because of terminal digit coding.

We added offices near the several hospitals to accommodate patient choice. Since charts were transferred between the offices, we needed a simplified system of filing, and the numeric system gave way to filing alphabetically. Although our advisers said we only needed the first two letters of the last name on the chart, we decided to highlight the first three letters, since we had 10 Johnsons and several times that many names starting with "JO." We had five Browns, but about a dozen starting with "BR," and five for Rodriguez with far more starting with "RO."

We also decided that all medical histories and physical examinations would be transcribed using a computer and saved on a hard disk, rather than being transcribed using a typewriter. This was really the forerunner of the modern EMR. The dictation would always include, in addition to the history and physical examination, the pulmonary function tests, arterial blood gases, electro-cardiograms, and chest X-rays that we did in our office. The entire evaluation would be typed and filed electronically. Also, the entire patient evaluation of some five to eight pages was easily accessible. Once we had a central server, the doctors began using computers in their own offices, and could access any patient record. It took another 10 years for the hospitals to reach this stage.

This is not the EMR that the late Sen. Edward M. Kennedy, Newt Gingrich, President George W. Bush, or the current occupant of the White House desired, but it served our purpose. It provided easy access and retrievability; it was a short five-to-eight-page complete medical record; it was easy to review it quickly, and to duplicate it for a referring physician or a hospital chart if the patient was admitted. It was also easy to update yearly or as needed.

The California Medical Board allows prescription refills for a maximum of 1 year without an examination. Most of our pulmonary patients, whether they had emphysema, asthma, bronchitis, cancer, silicosis, asbestosis, sarcoidosis, tuberculosis, or histoplasmosis should be evaluated in some detail at least yearly. Hence, we saw all patients for an annual exam, even though they may have had office visits during the course of the year. This facilitated our digital record keeping because we simply copied and pasted the previous year's record and revised it with the patient in front of us. We were able to easily review all medication changes during the course of the year and write refillable prescriptions until the next appointment, which avoided the hassles of pharmacy phone calls. We also reviewed consultations and hospital admissions with accurate updates. We could then generate another current five-to-eight-page record, including any new chest X-rays, pulmonary function tests, arterial blood gases, and electrocardiograms. These would be placed on top of the patient's paper file along with all the previous pages, including interim additions of lab, radiology, and hospital reports. The yearly exams, with the updates of that year, would always also be in the computer. This was the 1980s EMR.

This easily accessible record has been important in a number of instances, such as when a patient moves out of town or goes to another medical facility for 5, 10, or 15 years and then returns. The cost of storage of our records reached $22,000 for the first 20 years. After four years of inactivity, we began shredding records. We could always print out the previous annual exams to start a new record a decade or two later.

The Politically Preferred EMR

Although we were happy with our simple digital or electronic record, we looked over several competing proposals because of the national political push, which included the President of the United States informing us we would be more efficient, make fewer errors, and improve the quality of patient care with the EMR. Given our already efficient system, we failed to agree that more sophisticated EMRs would improve it. We saw shortcomings in every EMR proposal we reviewed; agreed we could not afford to convert from our current system; and resisted being the government's "laboratory" while it investigated how doctors function. The new EMRs would cause inefficiency, increase costs from additional employees, add time for the doctors, and introduce many errors into our practice.

Several of us had worked at various times with Kaiser Permanente (KP) and were acquainted with their latest comprehensive unified medical records. Physicians could enter the patient history and physical exam into a template, order and review laboratory and X-ray reports, pull up the X-rays on the screen, and review them with the patient. One could also prescribe from the same interface and immediately have the drug correctly spelled, appropriately dosed, flagged instantaneously if a drug interaction was possible, and have cheaper generic alternatives suggested. Charts were automatically flagged if an important test was due, e.g., HgbA1C in diabetics; mammogram; digital rectal exam; or colon screening. These all improved efficiency and quality of care. However, none of the EMRs we looked at did all of these things. As I recall, KP spent more than a billion dollars, and recently received a

citation as the most advanced Health Information Technology (HIT) system in health care.

We didn't think a major upfront cost would improve our practice. Also, the different proposals we had received were not compatible with each other. Neither were the EMRs of the four hospital systems in Sacramento compatible, nor could they interface with each other. Whether such interfacing would improve care and efficiency without jeopardizing the confidentially of the patient records is still a significant concern for patients, and physicians as well. I still have patients who, when they see me enter their computerized file, get up from their chair and attempt to leave until I assure them that my record does not interface with any other hospital or outside doctor's record.

Health Maintenance Organizations (HMOs), through their Independent Practice Organizations (IPOs), have been trying to duplicate the KP system for years outside the staff-model centralized HMO. However, they have not been able to approach the efficiency of a centralized HMO such as KP. Our IPA has made the Relay Health Electronic Prescribing system available, but this requires a separate log-in. Electronic laboratory and X-ray ordering is also made available, and each requires a separate log-in. Viewing the X-ray on the computer screen is very laborious. The system for monitoring laboratory, X-rays, mammograms, and colon screening requires that the physician access another program and manually enter the data for later notices and retrieval.

Recently, we have received EMRs from physicians who have previously treated our new patients. These records, in several instances, reached 195 pages, and in one case 243 pages. These are the types of records Congress and the President suggest will improve care and reduce costs by making medical care more efficient. However, we have not found that to be the case. It is much more time consuming to wade through several hundred pages of electronic records with endless duplications; variations from one physician to the next; outright differences in the examination of the same patient; and duplication of errors as one doctor copies the previous record of another physician into his own records, even though there are blatant errors. It has also become apparent that one physician has not reexamined much of what is recorded as being done by him. Sometimes we have wondered whether the two physicians even examined the same patient. Also, these are written records, and our compact 8-13 pages, allowing for the lab and X-ray reports to drift in, are overwhelmed by these hundreds of pages of outside EMRs. In fact, at times it is difficult to find our succinct but complete records in the midst of all this paper.

If EMRs were compatible with each other and could be transferred electronically, would this have been easier? In our experience, we found it to be more difficult and time consuming. We are now getting CDs of EMRs that can be loaded into our computer. We have the capability to download these hundreds of pages into our digital records.

Administrators are very proud to facilitate this. They tell us this should make it much easier to review the 195 or the 243 pages of digital records. However, we haven't found this to be true either. Each of us found that we could review 243 pages from the printout more easily and rapidly than running the pages on our computer screen, which limits our ability to absorb details, take notes, and then retype our consult summation that would make sense to the next consultant.

Then the question arose about whether the staff should load the EMRs into our patient records. Some of the doctors would not load the records and demanded they be loaded into the computers prior to the patient being seen. These partners soon found that this made the EMRs even more difficult to review and incorporate into the current records.

Professional Liability Concerns

Some of the doctors took the time to open the CD EMR and copy and paste what appeared to be the best history, physical exam, and appropriate lab work, and then discard hundreds of pages. Although the pages were still on the CD and placed inside an envelope and filed in the chart, we found that none of the doctors ever looked at the CD again, whether it was extracted or copied. Some felt that the CD had not been read or evaluated at all. In fact, there were innumerable pages of clinically irrelevant information from the EMR in the patient folder. Not only was this useless, it was time consuming, costly both in terms of staff and physician time, and it increased the volume of the records, making the compact and important information more difficult to access. This in turn decreased the quality of care and made malpractice more costly to defend. A team of lawyers, not concerned with hourly costs, could find a sentence or two within the hundreds of pages that would make one of our statements or prescriptions difficult to defend.

Our attorneys advised us against having a lot of unnecessary data in files that we had not thoroughly reviewed. Having a CD with hundreds of pages of information that no one had time to review could make a malpractice case indefensible. So the CD had to be destroyed if it had not been thoroughly incorporated into the medical records and into the doctor's evaluation of the patient.

Conclusions

There are many issues that physicians need to work out and become aware of before all practices in the entire country are transformed by fiat with the EMR. Our four hospital systems in Sacramento have EMRs that are useful. That may be the EMR's best use. The challenge now is to make them equally useful for private or small group practitioners. At this time, we do not feel they are.

As Clayton Christiansen of the Harvard Business School stated in his address to the World Health Care Congress in April, EMRs will sit on a computer unused until they become useful to doctors caring for patients. Doctors are generally at the forefront of any technology advance, as anyone should be able to recognize from the modern technology we use daily. Doctors are perfectly capable of proceeding with any technological advance as soon as it becomes useful in caring for patients.

Technology advances never need government financial incentives to be used. When they are more efficient than the present methods, decrease the number of errors, and improve the quality of patient care, doctors will use them.

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