



Reflections on Electronic Medical Record Systems



By Eduardo Bermudez, MD

Adios Dr. Osler and Bienvenido Scottie?

DURING MY MEDICAL TRAINING, attendings emphasized the importance of direct observation of the patient in making a diagnosis. Paying attention to body language and nuances in eye contact were as much a part of making a diagnosis as listening to the patient's symptoms. It was not just what the patient said, but how the patient said it that would allow you to determine what these symptoms meant.

However, about two years ago our medical group invested in an electronic medical record system, called Epic, aka, Health Connect. It is a complete electronic system for medical records, billing, and laboratory tests. It is integrated into every department so that one can order labs, X-rays, or obtain results, medical records and make appointments from any terminal. It requires that we input our notes and all of our requests directly into the computer.

It claims to improve the quality of health care, since patients will no longer have to carry slips back and forth, or risk losing them. In addition, there will be less risk of misinterpreting what is requested since no one has to try to decipher a doctor's handwriting.

Furthermore, doctors should no longer have to wait for a chart or struggle through the inevitable lab value that didn't make it back on the chart or, worse yet, try to find a lost chart. Doctors are able to e-mail lab results directly to their patients, and patients benefit from scheduling their own appointments at the time most convenient for them. They can send e-mails directly to the doctor, who can make timely responses.

However, I felt anxious about the changes that would occur in my practice style. In the past, when I walked into the exam room, I would shake the patient's hand and sit down directly in front of the patient, giving my full attention and making direct eye contact.

Now I walk into the exam room, greet the patient, and quickly divert my gaze to the computer to enter the necessary password and pull up the patient's record. Although it only takes a few seconds to punch the keys, it feels uncomfortably long.

While I am typing, the patient will invariably ask me a question or attempt to continue the conversation. However, since I am concentrating on putting in the right numbers, my attention is divided and I struggle to keep track of what the patient is saying.

Often I try to ease the awkwardness by asking the patients if they like the new system. Most of the younger patients seem to empathize with my dilemma, as they are going through similar changes in their own offices. The older patients seem uneasy, but are also proud that I am keeping up to date with the new technology. Others seem annoyed as they do not have a computer and have no interest in getting one.

As I try to focus on getting a history, I am simultaneously trying to type the information

into the computer. After all, I cannot keep interrupting the flow of the conversation because I have to finish typing the last sentence, pull up a lab, or an X-ray report. At the end of the visit, I have to type in orders for the pharmacy, or for any tests.

Usually during this time, the patient will start a side conversation with a casual "By the way..." and then I am compelled to enter yet more data into the medical record. Before the visit is finished, I can pull up and print out a list of instructions on the patient's disease. For instance, there are sheets on HTN, DM or cholesterol. The patients seem to be in awe of the amount of information they receive. In addition, they are impressed that they do not have to carry papers to the lab, or to X-ray, or prescriptions to the pharmacy. It is all done electronically.

When the visit is finished, I go back to my office to try to type up the encounter for the medical record. However, I am usually sidetracked in the hall by some busy nurse or medical assistant with a lab or order that needs my "electronic signature" In the past, I would just quickly scrawl my signature on the paper. Now I have to go into the computer, type in my password, enter several more keystrokes to get to the right screen and sign the order.

As I wait for the next patient to be roomed, I try to type my note, but find I am again interrupted by the phone or other messages. I have difficulty typing my note, and concentrating on these distractions, so it takes a long time to finish. As I walk down the hallway, I notice the medical assistants and nurses also typing on a computer. I feel guilty about interrupting them because of my own dislike for being interrupted when I am online.

Everyone seems to be very busy on the computer because there are so many things waiting to be done. Labs and X-rays need to be e-mailed to patients, messages sent or routed. I receive messages from the call center that require a typed response which I will either e-mail in reply, or will call the patient and type another note to document the telephone conversation.

Secure Messages is a system that allows the patient to directly e-mail the physician without having the message screened by a medical assistant or nurse. Often the patient's request is simply to get the results of a lab or X-ray. However, often patients request detailed explanations about their disease. or they ask about some new symptoms which require a diagnosis.

For complicated e-mails, I ask the patient to schedule an appointment, but they often e-mail back and just ask me to prescribe a medication. Obviously, this is more convenient for the patient, but it is more time consuming for me, and pressures me to make a diagnosis without a full exam.

Wondering how others felt about computers at work, I searched for studies regarding the issue. Interestingly, these articles show that patients have a positive response to clinician use of computers in the exam room. It allows them to feel more connected to their doctor.

The clinician initially feels inefficient with the system.¹ One study² found that the "initial" visit took about 37.5 percent longer (10 minutes) with the computer than without, while, follow-up visits took about the same time.

Another article³ found there were four domains affected by computer use.

(1) Spatial - effect of the physical presence and location of computers on the interaction between the physician and the patient. A fixed computer in the exam room limited the physician's mobility, but computers with mobile arms were preferred by patients and physicians.

(2) Relational factors - perceptions of physician and patients about the computer and how those perceptions affected its use. If a patient presented for a brief visit such as URI or

UTI, etc., the clinician would generally finish the note in the exam room. However, if the visit was complicated or emotional, the clinician would generally ignore the computer and focus on the patient.

Physicians had several styles in relation to their use of computers: (A) Information-focused physicians sat in front of the computer and used computer-guided questions to focus on the problem oriented details. (B) Physicians with an interpersonal style either sat or stood away from the computer or faced the patient using the mobility of the computer. (C) Physicians with managerial styles alternated their attention in defined intervals between the patient and the computer.

(3) Educational factors - developing a physician's proficiency with and improving patient's understanding about the electronic medical system. Physicians may need to improve typing skills and also need to know how to navigate the Internet or learn more computer skills. Also, there is a need to educate the patient on the use of the computer to improve the interaction in the office visit.

(4) Structural factors - institutional and technological forces that influence how physicians perceived their use of the electronic medical records. Monetary factors played a prominent role in deciding if a physician typed or dictated office notes. Typing was less expensive. Physicians using templates developed notes that lacked depth and intricate details, producing "cookie cutter" notes.

Despite problems, electronic records are easier to read, and allow improved access to labs and X-ray reports. There is less duplication of tests because results are less likely to be lost. It lends to better tracking of diagnosis, treatment, and outcomes for visits. In addition, improved coding should lead to better reimbursement.

Some physicians felt that there was improvement in communication between providers because they could send e-mails. In general, the overall amount of time spent by physicians may increase, but the electronic medical record seems to benefit ancillary providers.

My concern is that I do not want to lose my identity and personal patient contact to the medical record. I ask myself whether that terminal in the room will improve patient-doctor interactions, or if we will spend more time trying to get data out of and into the computer than getting information out of and into the patient.

We are not looking at the extra physician time required to provide these extra electronically mediated services. Our group has provided us with laptop computers so that we can bring home the work we are unable to finish in the office. We need to address the extra physician time spent in responding to e-mail, ordering tests, or signing orders electronically.

Doctors need extra time to handle the added load of e-mails, which can pile up without restriction, as compared to the limited time afforded by an answering machine.

What are some solutions to enhance the interaction between the patient, the doctor, and the computerized exam room? I found at least one answer: I need to LEVEL myself. According to one article¹, a suggestion is to:

- L - Let the patient look at the computer with you.
- E - Eye contact with the patient.
- V - Value the computer as a tool.
- E - Explain what you are doing.
- L - Log off and say so when you do.

Only the future will tell what these changes will bring. Obviously the technology is here to stay, but we still need to determine at what cost.

I am logging off!

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