

communication between primary care providers and parents. *Pediatrics* 2005;115:1283-8.

3. Wachter RM, Shojania KG. Internal bleeding: the truth behind America's terrifying epidemic of medical mistakes. New York: Rugged Land, 2004.

4. Transforming health care: the President's health information technology plan. Washington, DC: The White House, 2006. (Accessed May 24, 2007, at http://www.whitehouse.gov/infocus/technology/economic_policy200404/chap3.html.)

5. Chaudhry B, Wang J, Wu S, et al. Systematic review: impact of health information technology on quality, efficiency, and costs of medical care. *Ann Intern Med* 2006;144:742-52.

Copyright © 2007 Massachusetts Medical Society.

In the Dark — The Case for Electronic Health Records

Cara B. Litvin, M.D.

I sighed as I flipped again through the paperwork sent with my first admission of the night. All I found was a partially legible discharge summary. The patient, a young man who was ventilator dependent and in a vegetative state since receiving a gunshot injury 6 months previously, had been transferred from a nursing home after a workup revealed a new deep venous thrombosis in his leg.

From the limited notes provided by the nursing home, I ascertained that the gunshot had initially caused a subarachnoid hemorrhage. It was my job, as a night-float admitting resident, to determine whether it was safe to start anticoagulation for his thrombosis. I rummaged through his papers again. All I could find regarding his brain hemorrhage was the handwritten statement "Recent head CT stable."

I was angry that physicians had sent this patient without adequate documentation. In the corporate world, a business transaction would not be finalized if crucial information were missing, but transfers like this are commonplace in medicine. I called the nursing home and reached a doctor who had never heard of my patient. He agreed to look up the record and call me back. A few minutes later, someone else from the nursing home paged me and said he couldn't find any mention of a previous head CT. I pressed him for more information. After

a second perusal of the record, he discovered that a "brain" CT had been performed a few days earlier. My spirits rose as I waited for the report. "Oh," he said, "we don't have a report. We're not an acute care facility, so it takes several days for us to receive reports." Defeated, I hung up.

Half an hour later, I was wheeling my ventilated patient to the CT scanner for new views of his brain. These days, we can find the answer to almost any question immediately by doing a Google search, but unfathomably, it is still not possible for a physician in Manhattan to obtain a timely report of a study performed in another New York borough.

I waited for a corrections officer to open the gates to the prison floor of the hospital so I could see my next admission — a prisoner from Rikers Island who had been sent to a different hospital for stabilization and was being transferred here for treatment. The nurse warned me, "There's not much there," as I looked through the chart. The discharge summary from the transferring hospital was one of the briefest I had ever seen: "Admitted for altered mental status, s/p respiratory distress, and intubated. Treated with broad-spectrum antibiotics. Extubated 2 days ago and now stable for transfer."

A set of basic laboratory tests from a couple of days earlier was included with the paperwork, but there were no culture reports, no

mention of which antibiotics had been used, and no chest radiography reports. A 10-day course of critical care had been summed up in three sentence fragments and one set of lab tests. I spent another 20 minutes drawing labs and cultures and then ran back to the emergency room to see another new admission, still without a clear plan for the patient I had just left.

Later that night, I looked over the chart for my sixth admission. A 72-year-old patient with schizophrenia who spoke only Cantonese had been referred from a Chinatown clinic for admission. Because only the words "PPD positive" had been written on the referral sheet, he had been isolated in the emergency room. I wasn't sure whether the tuberculosis positivity was a new finding, and the patient appeared comfortable on the stretcher. He was not coughing, and his lungs were clear. Without any family members present to provide clarification, I tied a mask on him and walked him outside his isolation room to a translator phone. Even through the translator, I could barely get a history. I looked for evidence of a recent skin test on his forearms but found nothing. He was afebrile, and his chest radiograph was normal. I couldn't understand why his primary care doctor had thought he needed to be admitted. Once again, I felt as though I were practicing medicine in the dark.

Very few of my patients that night had come directly from the emergency department. Most were transfers and referrals, which meant that another physician had already evaluated them that day. But deplorable documentation had left me at a loss. I knew the teams I would be signing out to in the morning would probably be able to track down more information, but it was unfair to all of us — especially to the patients — that care was suboptimal simply because records were not available.

The hospital where I work is dedicated to underserved patients and has limited resources, so it is not surprising that our information systems are lacking. But the private hospital where residents in my program do rotations has a similar story — discharge summaries are nonexistent and clinic notes are unobtainable. Even at a prestigious specialty referral center where old charts are scanned and can be viewed on any computer, it is often difficult to piece together a patient's history, largely because it is hard to decipher the handwritten progress notes.

It is only during our rotations at the Veterans Affairs (VA) hospital that we glimpse how information can be conveyed effectively. Since the early 1990s, the VA has been a pioneer in adopting information technology, using an integrated electronic health record (EHR) system to promote high-quality care. The VA now outperforms Medicare and most private health plans on many quality measures.¹ Prescriptions, lab tests, studies, consults, reports, and progress notes from all visits by patients to any VA hospital are stored in EHRs. Although interns sometimes complain about having to scroll through a vast electronic chart to write an admission note, care is enhanced by this system.

Information is vital to the provision of high-quality care, yet too often, improving information systems is not seen as a priority. Throughout training, the practice of evidence-based medicine is emphasized. We are expected to be familiar with all the current literature on medications, procedures, and imaging methods, but our currency is irrelevant when a flawed communication system limits our ability to translate knowledge into clinical practice.

In recent years, the technological lag of the medical world has finally been noticed, and the concept of a national EHR system has gained popularity. The use of EHRs is still relatively limited: one study showed that only about 1 in 4 doctors use such systems, and fewer than 1 in 10 use them as efficiently as possible.² Barriers include the cost of implementation (an EHR system can cost more than \$20,000 per physician³), the lack of communication standards, inadequate data exchange, insufficient user training, and privacy concerns.⁴ Nevertheless, the Bush administration has set a goal of having EHRs for most Americans by 2014,⁵ and a bipartisan effort has been made to promote the adoption of health information technology. The achievement of such a goal will require not only extensive funding and research on implementation but also recognition among physicians that medicine is an information science.

At 6 in the morning, I headed to the emergency room to see my last admission, a 52-year-old Bangladeshi patient who had immigrated about 5 years earlier and had been followed in our hospital and clinics. Our hospital record system, though not as fully integrated as the VA system, provides access to typed discharge summaries, clinic notes, and the re-

sults of tests performed at our institution. I was able to scan through the records on the computer, so I knew most of the man's history before I met him. He said he had exertional chest pain. I knew that he had been admitted several times within the past year reporting a similar problem but that two stress tests had been negative. In fact, the record contained a clinic note from the previous week indicating that he had reported similar symptoms to his primary care physician. Although he had risk factors for coronary disease and needed to be taken seriously, I was reassured by his previous workup.

The patient mentioned that the day before, he had seen a doctor who was not part of our system. "He told me to go to the nearest hospital, but even though I had to take a long subway ride to get here, I knew that coming here would be better for me because you would have all my records," he said. I smiled. The patient had lived in the United States for only 5 years, but he had already zeroed in on one of the greatest flaws of the U.S. health care system.

Dr. Litvin is a resident in the Department of Medicine at New York University Medical Center, New York.

1. Jha AK, Perlin JB, Kizer KW, Dudley RA. Effect of the transformation of the Veterans Affairs health care system on the quality of care. *N Engl J Med* 2003;348:2218-27.
 2. Jha AK, Ferris TG, Donelan K, et al. How common are electronic health records in the United States? A summary of the evidence. *Health Aff (Millwood)* 2006;25:496-507.
 3. Kaushal R, Blumenthal D, Poon EG, et al. The costs of a national health information network. *Ann Intern Med* 2005;143:165-73.
 4. Baron RJ, Fabens EL, Schiffman M, Wolf E. Electronic health records: just around the corner? Or over the cliff? *Ann Intern Med* 2005;143:222-6.
 5. A new generation of American innovation. Washington, DC: The White House, 2004. (Accessed May 24, 2007, at http://www.whitehouse.gov/infocus/technology/economic_policy200404/chap1.html.)
- Copyright © 2007 Massachusetts Medical Society.