

ing sales and marketing practices for Epogen, Procrit, and Aranesp, and Johnson & Johnson faces a whistleblower lawsuit about its marketing of Procrit.

After reviewing public comments, CMS will issue a national coverage decision for the use of erythropoietins outside renal disease. Although advisory-committees' advice is not binding, the FDA is likely to further restrict the use of erythropoietins in oncology. In the fall, another advisory committee will review the use of the agents in chronic renal failure. If

the FDA gains new authority as part of the drug-safety legislation that is pending in Congress, the agency may be better able to provide physicians and patients with clear and timely guidance.

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Communication between Physicians and Patients in the Era of E-Medicine

John H. Stone, M.D., M.P.H.

This year, my clinic began inviting patients to use a secure Internet link to communicate with physicians and staff members. Self-preservation was high on our list of reasons for establishing online communication. Our patients had become accustomed to contacting us through myriad routes: the clinic telephone, our individual office lines, the hospital paging system, our cell phones, the clinic fax machine, and in some cases, our home telephones. Secure Web messaging about routine issues was an attempt to direct round-the-clock communication into a manageable channel.

Even before we initiated such messaging within a broader model of e-medicine, many patients had begun to use standard e-mail to contact us. Our hospital administrators, however, did not permit us to respond. Standard e-mail was incompatible with our existing electronic health records (EHRs) system and would therefore have been difficult to archive. But the larger problem was that

the use of standard e-mail to communicate with patients was illegal — a violation of the Health Insurance Portability and Accountability Act. Patients' privacy could not be guaranteed because our replies would not be secure outside the university's firewall. Armed with strong motivation to enter the electronic age and full awareness of the need to protect ourselves and our patients from the hazards of e-medicine, we ventured forth cautiously into the online world.

In addition to secure Web messaging, the e-medicine model we adopted comprised four major types of services: online appointment scheduling, electronic prescription refills, general messaging capabilities, and "Web visits" with physicians. General messaging permits patients to ask simple questions electronically, obviating many telephone calls (e.g., "Should I have a chest x-ray before my next visit?"). In contrast, Web visits are structured consultations focused on nonurgent chief complaints

(e.g., cough), involving menus of questions tailored to the problem, brief answers by the patient, and a response from the physician provided within a certain period.

With the growing acceptance of e-medicine by third-party payers, a quiet revolution has begun. Aetna, Cigna, and other insurers now reimburse physicians for Web consultations in Florida, California, Massachusetts, and New York. Although the providers who are reimbursed even in these states remain a minority, early studies indicate that e-medicine methods improve the productivity of providers, reduce the number of office visits, and save money.¹ The field is evolving swiftly; during the next few years, patients, staff members, medical educators, doctors, hospital administrators, insurance providers, and companies that offer secure Internet services will shape the future of e-medicine.

Patients who are comfortable with the Internet delight in e-medicine's prospect of convenient ac-

Consumer Interest in Technology When Seeking Medical Care.*			
Variable	Yes, Would Like	No, Would Not Like	Not Sure
		percent	
Which of the following technologies would you like to have access to when seeking care from a doctor or hospital?			
An electronic medical record to capture medical information	64	18	19
E-mail to communicate directly with my doctor	74	14	13
Ability to schedule a doctor's visit on the Internet	75	14	11
Receiving the results of diagnostic tests by e-mail	67	22	11
A home-monitoring device that allows me to send medical information (such as blood-pressure readings and blood tests) to the doctor's office by telephone or e-mail	57	21	22
Reminders by e-mail from my doctors when I am due for a visit or some type of medical care	77	13	9

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cess to doctors. Most patients became frustrated long ago by telephone calling trees, voicemail tag, and interminable waits on hold. A Harris Interactive survey of health care consumers, published in September 2006, indicated a strong preference among a majority of respondents for access to a variety of e-medicine technologies in communicating with their doctors and hospitals (see table). Even so, many patients do not expect to pay for this expanded access.² In states in which Web consultations with physicians are not reimbursed, prices for "Web visits" typically range from \$10 to \$25, and patients pay the full cost. Requests for prescription refills and queries about test results, viewed as extensions of visits, are generally free. The expenses that patients incur in attending clinic visits — time away from work, the cost of travel, the price of parking, and the copayment — make Web visits for nonurgent problems an attractive option for some. Nevertheless, third-party payers will have to begin underwriting the cost of Web visits (minus copayments) before patients avail themselves widely of this option.

Staff members in medical of-

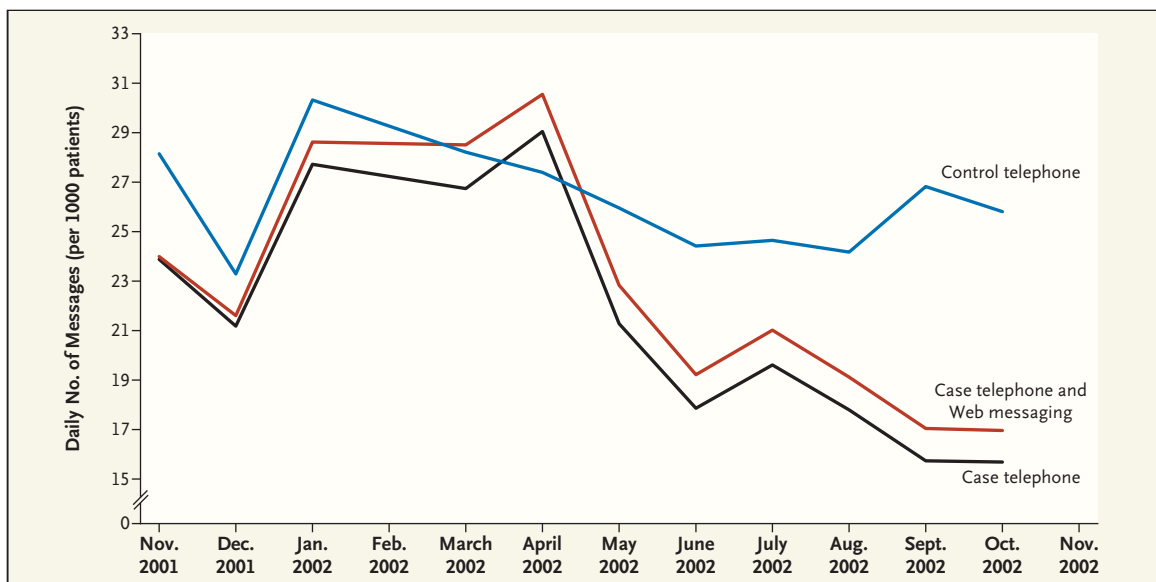
fices, who are usually the first point of contact for patients, tend to embrace e-medicine wholeheartedly. Despite communication advances in most other spheres of human endeavor, communication about patient care has remained dependent on telephones, fax machines, and paper. To refill prescriptions over the telephone, staff members must not only field requests from patients but also establish contact with pharmacies — a process fraught with delay, duplication, and frustration. The use of e-mail for routine tasks, such as prescription refills and appointment scheduling, reduces clinics' call volume (see graph),¹ which gives staff members more time to serve patients with urgent needs.

E-medicine may also enable hospitals to improve transitions of care for patients. In the era of hospitalist medicine, the doctor caring for patients in-house is seldom the one who will follow them after discharge. Hospital administrators and hospitalists are concerned about fumbling the handoff.³ Physicians in emergency departments have similar concerns. Flawed transitions of care can lead to mistakes that have serious health consequences for

patients and leave hospitals and physicians facing litigation. Such gaps in care could be bridged through the use of e-medicine networks that permit hospitalists, emergency department physicians, primary care providers, pharmacists, and patients to converse easily with one another.

A growing number of companies seek to capitalize on secure communication products. Several products are associated with EHRs that patients can maintain and share with their doctors, as well as with any practitioner who uses the same application (and is granted permission by the patient). Sharing EHRs among various software applications remains a challenge. The federal government, which has set out a National Health Information Technology plan with a goal of establishing EHRs for most Americans by 2014,⁴ has the opportunity to create standards for medical e-communication and to insist on interoperability of systems.

What do doctors think? Many of them appreciate the asynchronous nature of Web messaging: patients contact doctors at their convenience, and physicians respond when they have a moment. Doctors also acknowledge the



Reduction in Telephone-Message Volume through the Use of Electronic Communication.

The numbers of incoming telephone calls and e-mails from patients to a group of physicians provided with a Web-messaging system (cases) are compared with the number of calls to a group of physicians who used only telephones for such communication (controls). Among case physicians, the number of messages was significantly reduced during an 11-month period: by 18% for telephone calls ($P=0.002$) and by 14% for all messages ($P=0.02$). (Adapted with permission from the *Journal of General Internal Medicine* 2005;20:52-7. Figure courtesy of Dr. Eric M. Liederman.)

gains in patient safety offered by electronic prescriptions and automatic checks for drug interactions.⁵ Physicians who have used secure Web messaging realize that the efficiency of interactions between physicians and patients could be enhanced even further by linkage between messaging systems and the EHRs kept by health care systems. Such linkages would enable them and their patients to toggle among recent test results, secure e-mail messages, and Web visits. Although doctors are wary of returning from busy clinics to find a dozen Web messages awaiting responses, most find it much easier to reply to queries in this form than to return a dozen telephone calls.

Despite the advantages of e-medicine, physicians, who face ever-increasing demands on their time, are hesitant to accept new responsibilities that might increase their workload. Thus, the issue of physician reimbursement is central both to e-medicine's full

adoption by doctors and to its broader acceptance by society. If physicians are compensated fairly for the expertise, thought, and time required to respond to Web messages in a professional manner, they will build time into their schedules for this task.

As the number of providers who accept e-medicine reaches critical mass, more third-party payers (including Medicare) are likely to recognize its efficiencies and include reimbursement for it in contracts with providers. Given the ubiquity of the Internet in the rest of our lives — more than one third of all bill paying is now accomplished online — patients will begin to demand Web services from health care providers and payers.

The “laying on of hands” will increasingly include the pressing of keys. This emerging model will improve the practice of medicine but will also bring new challenges. Physicians will need to develop their skills for quick, clear, and

compassionate communication with patients through the written word. E-medicine will also demand from physicians astute judgment about which patients need to be evaluated in person and sound intuition about when patients' emotional needs are better served face to face. In the end, e-medicine, like “traditional” medicine, will remain a human enterprise, filled with the potential for misinterpretation and insensitivity but also for facilitation, comfort, and kindness. It is our task to ensure that e-medicine — now inevitable in some form or many — improves the ways in which we deliver, receive, and pay for health care.

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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.