

Electronic visits offer accurate diagnoses, may lead to overprescribing of antibiotics

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One of the first studies to compare patients who see their doctors in person to those who receive care through the Internet, known as an e-visit, underscores both the promise and the pitfalls of this technology.

Researchers at the University of Pittsburgh School of Medicine and UPMC found that [patients](#) who used e-visits for sinusitis and [urinary tract infections](#) (UTIs) were no more likely to need follow-up care than those who saw doctors in person. However, e-visit patients were more likely to receive [antibiotics](#), and those with UTIs in particular were less likely to have relevant testing ordered by their physicians before receiving medication.

The findings, available online in the [Archives of Internal Medicine](#) and appearing in the Jan. 14 print edition, covered four [primary care](#) practices at UPMC, a leader in creating structured e-visits to improve access to care and convenience for patients. The researchers examined data from 5,165 visits for sinusitis and 2,954 visits for UTIs from Jan. 1, 2010, to May 1, 2011. Nine percent of the visits for sinusitis and 3 percent for UTIs occurred through the Internet at these four practices. In a UPMC e-visit, patients log in to a secure [personal health record](#) portal and answer a series of questions about their conditions. Doctors typically reply through the portal within a couple of hours, have full access to the patient's [electronic medical record](#), and can prescribe drugs electronically.

"The main concern about e-visits, now offered in various forms by

numerous [health systems](#), has centered on quality issues—specifically about whether physicians can make accurate diagnoses without a [physical exam](#); whether the use of tests and follow-up visits is appropriate, and whether antibiotics might be overprescribed," said Ateev Mehrotra, M.D., lead author of the study, associate professor in internal medicine at Pitt's School of Medicine and a researcher at the non-profit RAND Corporation. "Our findings refute some of these concerns and support others."

The researchers found that for each condition, there was no difference in how many patients had a follow-up visit either for that condition or for any other reason. "Follow-up rates are a rough proxy for misdiagnosis or treatment failure, so the lack of difference should be reassuring to patients and physicians," said Dr. Mehrotra.

However, on a less reassuring note, physicians were more likely to prescribe an antibiotic at an e-visit for either condition. "When physicians cannot directly examine the patient, they may be more likely to take a 'conservative' route and order antibiotics," Dr. Mehrotra said. This is a particular concern because misuse of antibiotics across the country is leading to an increase in drug-resistant germs.

For UTIs, the researchers found that physicians were less likely to order a urinalysis or urine culture, which can confirm a bacterial infection, after an e-visit (8 percent compared with 51 percent of office visits). Few sinusitis-relevant tests were ordered for either type of visit.

While Dr. Mehrotra and his team did not directly measure costs, Medicare reimbursement data and prior studies provide some evidence that e-visits have the potential to decrease health spending. For UTI visits, Medicare reimbursement for an e-visit was \$40 compared with \$69 for an office visit. Additionally, the lower rate of testing at e-visits outweighed the increase in prescriptions. In total, the estimated cost of

UTI care was \$74 for an e-visit compared to \$93 for office visits.

Dr. Mehrotra cautioned that the study has some key limitations, including that it captured only follow-up visits, not outcomes, such as resolution of symptoms. The team also did not compare phone care, which is commonly provided in primary care practices, to electronic or office visits. "Our initial findings emphasize the need to continue assessing the clinical impact of e-visits as their popularity grows," said Dr. Mehrotra.

Provided by University of Pittsburgh Schools of the Health Sciences

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