not treated. In addition, preoperative UCs were associated with higher rates of SSI, diarrhea, and CDI, whereas bacteriuria, although associated with health care provider–diagnosed postoperative UTI, was not associated with SSI. Because these associations are derived from small samples in an observational study, they should be interpreted cautiously, recognizing the potential for confounding. Similarly, the finding that treating bacteriuria was associated with SSI may be confounded by factors that contributed to the decision to administer antimicrobial drugs.

To our knowledge, this study provides the first systematic assessment of the frequency of preoperative UCs. Moreover, with nearly 2000 procedures, it is the largest study to assess outcomes associated with such testing. Our findings document that treatment of preoperative bacteriuria is associated with no benefit. These findings suggest that, outside the context of a randomized clinical trial, preoperative screening for and treatment of asymptomatic bacteriuria should be avoided in patients undergoing cardiovascular, orthopedic, or vascular surgery procedures.

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A Comparison of Care at E-visits and Physician Office Visits for Sinusitis and Urinary Tract Infection

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ternet capabilities create the opportunity for e-visits, in which physicians and patients interact virtually instead of face-to-face. In e-visits, patients log into their secure personal health record internet portal and answer a series of questions about their condition. This written information is sent to the physicians, who make a diagnosis, order necessary care, put a note in the patients’ electronic medical records, and reply to the patients via the secure portal within several hours. E-visits are offered by numerous health systems and are commonly reimbursed by health plans.1,2 They typically focus on care for acute conditions, such as minor infections.

There are several potential advantages of e-visits, including convenience and efficiency (avoiding travel and time) and lower costs.3 Furthermore, e-visits can be provided by the patient’s primary care physician instead of a physician at an emergency department or urgent care center. The main concerns about e-visits center on quality issues: whether physicians can make accurate diagnoses without a face-to-face interview or physical examination,4 whether the use of tests and follow-up visits is appropriate, and whether antibiotics might be overprescribed.

To our knowledge, no studies have characterized the differences between e-visits and office visits. To fill this knowledge gap, we compared the care at e-visits and office visits for 2 conditions: sinusitis and urinary tract infection (UTI).

Methods. We studied all e-visits and office visits at 4 primary care practices within the University of Pittsburgh Medical Center Health System, Pittsburgh, Pennsylvania. These practices were the first to offer e-visits, but they are now offered at all primary care office locations. The practices have a total of 63 internal medicine and family practice physicians. We identified all office visits and e-visits for sinusitis and UTI at these practices between January 1, 2010, and May 1, 2011. Structured data were obtained directly from the electronic medical records (EpicCare).
Results. Of the 5165 visits for sinusitis, 465 (9%) were e-visits. Of the 2954 visits for UTI, 99 were e-visits (3%). Physicians were less likely to order a UTI-relevant test at an e-visit (8% e-visits vs 51% office visits; P < .01) (Table). Few sinusitis-relevant tests were ordered for either type of visit. 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 (Table).

Physicians were more likely to prescribe an antibiotic at an e-visit for either condition. The antibiotic prescribed at either type of visit was equally likely to be guideline recommended. We looked at possible explanations for the lower office visit antibiotic rate (Table). Among UTI office visits, the antibiotic prescribing rate was 32% when a urinalysis or urine culture was not ordered compared with 61% when a urinalysis or urine culture was ordered.

During e-visits for both conditions, physicians were less likely to order preventive care. Among patients with an e-visit for either condition, we tracked where they received care for any subsequent visits. Among e-visit patients, there were 147 subsequent episodes of sinusitis or UTI. Among these episodes, 73 (50%) were e-visits.

Conclusions. Our findings refute some concerns about e-visits but support others. The fraction of patients with any follow-up was similar. Follow-up rates are a rough proxy for misdiagnosis or treatment failure and the lack of difference will therefore be reassuring to patients and physicians. Among e-visit users, half will use an e-visit when they have a subsequent illness in the next year. Patients appear generally satisfied with e-visits.

On the other hand, antibiotic prescribing rates were higher at e-visits, particularly for UTIs. When physicians cannot directly examine the patient, physicians may use a "conservative" approach and order antibiotics. The high antibiotic prescribing rate for sinusitis for both e-visits and office visits is also a concern given the unclear benefit of antibiotic therapy for sinusitis.

Our data support the idea that e-visits could lower health care spending. While we did not directly measure costs, we can roughly estimate costs using Medicare reimbursement data and prior studies. If we focus on UTI visits, the lower reimbursement for the e-visits ($40 e-visit vs $69 office visit [CPT 99213]) and the lower rate of testing ($11 urine culture) at e-visits outweigh the increase in prescriptions ($17 average prescription). In total, the estimated cost of UTI visits was $74 for e-visits compared with $93 for office visits.

There are several key limitations of our analyses. Our analyses are based on diagnosis codes and not on the patient’s presenting symptoms. We captured only

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Table. Comparison of Care at E-visits and Office Visits for Sinusitis and Urinary Tract Infection (UTI)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sinusitis, No. (%)</th>
<th>UTI, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-visit</td>
<td>Office Visit</td>
<td>E-visit</td>
</tr>
<tr>
<td>(n = 475)</td>
<td>(n = 4690)</td>
<td>(n = 99)</td>
</tr>
<tr>
<td>Provider at visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient’s designated PCP</td>
<td>194 (39)</td>
<td>2154 (42)</td>
</tr>
<tr>
<td>Follow-up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-up visit in following 3 weeks for same condition</td>
<td>26 (5)</td>
<td>224 (5)</td>
</tr>
<tr>
<td>Follow-up phone call or e-mail in following 3 weeks for the same condition</td>
<td>1 (0.2)</td>
<td>32 (1)</td>
</tr>
<tr>
<td>Orders for tests or consultations for condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any relevant test for that condition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sinus x-ray film or CT</td>
<td>0</td>
<td>40 (1)</td>
</tr>
<tr>
<td>Urine culture</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Antibiotic prescribing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any oral antibiotic prescribed</td>
<td>471 (99)</td>
<td>4408 (94)</td>
</tr>
<tr>
<td>Antibiotic prescribed for 5 days or less (among those with prescription)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Antibiotic prescribed was guideline recommended or patient allergic to one of the guideline antibiotics (among those prescribed an antibiotic)</td>
<td>331 (70)</td>
<td>3120 (67)</td>
</tr>
<tr>
<td>Preventive and chronic disease care ordered at visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preventive care</td>
<td>1 (0)</td>
<td>155 (3)</td>
</tr>
<tr>
<td>Chronic disease test (eg, hemoglobin A1c)</td>
<td>0</td>
<td>168 (4)</td>
</tr>
</tbody>
</table>

Abbreviations: CT, computed tomogram; NA, not applicable; PCP, primary care provider.

a For sinusitis visits, we defined relevant tests or orders as a sinus CT, facial or sinus x-ray film, and referral to otolaryngology. For UTI visits, we defined relevant tests as a urinalysis, urine culture, or referral to urology.

b Limited to UTI visits, as optimal antibiotic duration for sinusitis is uncertain. The denominator for this measures of care is those visits at which an antibiotic was prescribed. Sinusitis e-visits (n = 471) and office visits (n = 4567); UTI e-visits (n = 98) and office visits (n = 1299).

c The guideline-recommended antibiotics for sinusitis were amoxicillin or trimethoprim-sulfamethoxazole, and for UTI they were fluoroquinolone, trimethoprim-sulfamethoxazole, or nitrofurantoin. The denominator for this measures of care is those visits at which an antibiotic was prescribed. Sinusitis e-visits (n = 471) and office visits (n = 4567); UTI e-visits (n = 98) and office visits (n = 1299).

d The following tests or services are related to preventive care (mammography; colonoscopy; fecal occult blood test; any type of immunization, including influenza; and lipid panel) and chronic illness care (hemoglobin A1c, fasting glucose, lipid panel, thyroid-stimulating hormone, triiodothyronine/thyroxine, blood pressure check, referral retinopathy testing, and spirometry).
follow-up visits, and future studies should prospectively follow up outcomes such as resolution of symptoms. We do not compare phone care for these conditions, which is commonly provided in primary care. Our results highlight key differences between office visits and e-visits and emphasize the need to assess the clinical impact of e-visits as their popularity grows.

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Online-Only Material: Listen to an author interview about this article, and others, at http://bit.ly/OsqNsT.

Previous Presentation: This study was presented in part at the AcademyHealth Annual Research Meeting; June 25, 2012; Orlando, Florida.

Results. Nearly 4 in 10 American adults (37.8%) reported having taken any dietary supplement in the past 2 years, including 1 in 7 (13.9%) who reported taking supplements regularly. The supplement with the highest level of reported use was fish oil or other omega-3 supplements, with nearly one-fourth of adults (23.9%) reporting having taken these supplements in the past 2 years. Lower proportions—fewer than 1 in 7 (13.9%)—were taken having taken other types of supplements, such as herbs or probiotics (12.5%) or probiotics (9.9%).

When dietary supplement users (those who had used dietary supplements in the past 2 years) were asked why they made the decision to use dietary supplements, the most common answers were “to feel better” (41.0%), “to improve your overall energy levels” (40.8%), and “to boost your immune system” (33.9%). Significant numbers of...