interested in increasing the use of generic drugs may consider banning physicians from accepting food and beverages in the workplace. Any potential interventions should be targeted toward older physicians, internists, and those in solo or 2-person practices.

Our study has several limitations. First, because of social desirability bias, our results likely represent a lower-bound estimate of the actual frequency of physicians prescribing brand-name drugs at the patients’ requests. Second, we were unable to adjust the result for the frequency with which physicians were asked by patients for a specific brand-name drug. Finally, our study was not able to examine whether a brand-name drug was actually dispensed at the pharmacy, given that some states have laws that allow pharmacists to substitute a generic for a brand-name prescription.

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EDITOR’S NOTE

Systems-Level Interventions to Improve Value in Prescription Medication Use

There is immense excess cost associated with using brand-name drugs when equally efficacious generics are available. For unclear reasons, a large proportion of physicians are reluctant to opt for the more cost-effective choices, especially if patients request brand-name drugs. Campbell et al find that social factors appear to influence medication decisions. Such situations call for systems-level interventions to overcome the irrational cultural practices. In this case, large, closed health systems with pharmacy benefits and managed formularies use pharmacy-level decision making on drugs, once the physician has made the decision on the appropriateness of the medication. These systems also allow for physician override when appropriate. Such systems-level interventions have immense potential to increase value in prescription medication use.

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RESEARCH LETTERS

Patient Knowledge and Understanding of Radiation From Diagnostic Imaging

Health risk from medical radiation exposure has generated controversy in recent lay and professional publications.1-3 Data examining what patients know about radiation from commonly performed imaging, such as computed tomography (CT) and single photon emission computed tomography (SPECT), are limited. The purpose of this study was to survey patient knowledge and understanding of radiation from CT and SPECT scans.

Methods. This prospective survey study took place at a large academic medical center. From February through December 2011, randomly selected patients presenting for nonurgent outpatient CT and cardiac SPECT scans were surveyed.

The 16-question survey contained 2 sections (eFigure; http://www.jamainternalmed.com). Section 1 assessed knowledge and perceptions about health risks and benefits from CT or cardiac SPECT. The last question of section 1 asked patients if the scan they were about to undergo exposed their body to radiation. Only if patients responded “yes” were they instructed to continue
Results. During the study period, 324 patients were approached, and 78 declined or were ineligible. Eleven surveys were incomplete and excluded from analysis. The final sample was 235 (a 72% response rate). There were 50 cardiac SPECT respondents and 184 CT respondents; 63% were women, with a mean age of 55 years (range, 18-89 years). Fifty-eight percent had at least a college education, and 17% reported current or past medical field employment. The estimated radiation dose was 12.7 ± 4.6 mSv (range, 1.1-60.4 mSv) for CT and 14.6 ± 9.4 mSv (range, 9.6-24.6 mSv) for cardiac SPECT.

Survey Section 1. Most patients (69%) reported their health care provider as their main source of health information. About half of the patients (51%) heard nothing in the media over the past year about radiation from medical imaging. Many patients (66%) believed that their scan was definitely necessary and that the results would lead them to feel better (51%) or live longer (45%). Only 3% of patients reported thinking about radiation prior to their scan (Table). Most patients (90%) reported that it was important to be informed of imaging risks, 84% reported that the ordering health care provider explained the reason(s) for the scan. Eighty-one patients (34%) did not know that the scan exposed their body to radiation.

Survey Section 2. Of the 154 patients who knew that the scan involved radiation, 45% reported that the ordering health care providers informed them of the radiation. Patients were asked to compare radiation from their scan with 1 year of background radiation. When the patient’s estimate of radiation was compared with the calculated estimate using DLP and millicuries, 85% underestimated the amount of radiation. Most patients (88%) were not worried about scan radiation. Only 5% of patients believed that scan radiation would increase their lifetime risk of cancer. Most patients (95%) reported that it was more important to figure out what might be wrong than to worry about scan radiation.

Comment. A well-informed patient has an understanding of radiation dose and potential health risks of radiation prior to imaging. When combined with an understanding of benefits, patients are well positioned to assess the risk-benefit ratio and participate in shared decision-making. While most patients recalled their health care provider discussing the reasons for imaging, discussion of radiation dose, and associated risk was lacking. One-third of patients were unaware of scan radiation. Of those who were aware, their understanding of relative dose was inaccurate. Furthermore, most patients reported that their scan was necessary and that results would lead them to feeling better and living longer, suggesting some degree of understanding of real or presumed benefit.

Although research in this area is limited, these data are consistent with those of prior publications highlighting patients’ lack of knowledge regarding scan radiation.6-8 When considering why patients might be poorly informed, several possibilities exist. Many health care providers have little knowledge about radiation and thus are poorly equipped educators. Radiation is a difficult concept to explain and comprehend. Despite a good explanation, the ability of some patients to understand radiation-related concepts during a short clinic interaction might be limited.

Our study has several limitations. The sample of nonurgent outpatients was obtained at 1 academic medical center during business hours. Results may not apply to other patient populations or other hours of operation.

In conclusion, these data suggest that patients undergoing nonurgent CT and cardiac SPECT wish to be informed of imaging risks but have limited knowledge and understanding of radiation dose or associated health risks. One-third of patients were unaware they would be exposed to radiation, and those who were aware substantially underestimated the relative dose. These data suggest that many patients have a limited ability to make well-informed decisions about imaging that involves radiation.

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Table. Categorized Responses to the Question “As You Thought About the Scan You Are Having Today, What Kinds of Things Did You Think About?”a

<table>
<thead>
<tr>
<th>Category</th>
<th>Responses, No. (%)</th>
<th>Example Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health related</td>
<td>92 (39.0)</td>
<td>“I hope my cancer has not returned.”</td>
</tr>
<tr>
<td>Scan related</td>
<td>53 (23.0)</td>
<td>“I hope it’s over fast . . . I’m claustrophobic.”</td>
</tr>
<tr>
<td>Radiation related</td>
<td>6 (3)</td>
<td>“I hope they can get the IV in.”</td>
</tr>
<tr>
<td>Other</td>
<td>20 (9)</td>
<td>“I wonder how much radiation this is.”</td>
</tr>
<tr>
<td>No response</td>
<td>64 (27.0)</td>
<td>“When can I eat?”</td>
</tr>
</tbody>
</table>

aData are responses.

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Previous Presentation: Data from this study were presented at the Radiological Society of North America 97th Scientific Assembly and Annual Meeting; November 29, 2011; Chicago, Illinois.

Online-Only Material: The eFigure is available at http://www.jamainternalmed.com.


Optimal Interval for Routine Cytologic Screening in the United States

Despite the success of cytology-based (Papanicolaou) screening in the United States, over 12 000 women develop and 4000 women die from cervical cancer each year,1 signaling important flaws in current practice. Paradoxically, a large proportion of women are overscreened,2 while at least 50% of cases occur among women who are infrequently or never screened.3 Guidelines have historically recommended screening early and frequently (eg, annually) to offset the poor sensitivity of a single Papanicolaou test. However, a better understanding of the slow natural course of disease, the availability of highly sensitive tests to detect oncogenic human papillomavirus, the causal agent of cervical cancer, and evidence of adverse pregnancy outcomes associated with pre-cancer treatment have triggered momentum toward less aggressive screening in the general population. Consensus guidelines issued this year now recommend screening no earlier than age 21 years and no more frequently than every 3 years for routine cytologic screening to minimize overuse and patient harms while maintaining high levels of cancer prevention.4,5 Because the impact of chang-