With respect to sodium, more than 80% of meals exceeded the daily adequate intake level (1500 mg), with more than 50% exceeding the daily upper tolerable intake level (2300 mg). Only 1% of meals had less than 600 mg of sodium, the "healthy level" for meals, according to the Food and Drug Administration.[7] Almost 50% of meals exceeded the daily value for fat (65 g) and 25% exceeded the daily value for saturated fat and cholesterol.

Furthermore, a dessert, if ordered, would add an additional 549 calories, 27 g of fat (43%DV), 13 g of saturated fat, 0.6 g of *trans* fat (68%DV), and 46 g of sugar.

Meals identified by the restaurants as being "healthy" contained on average 474 calories, 13 g of fat (20%DV), 3 g of saturated fat (17%DV), and 752 mg of sodium (50% of the daily adequate intake level).

Discussion | This study presents the average nutrient levels in a variety of different breakfast, lunch, and dinner meals from the major SDR chains. On average, meals contained more than a full day's worth of sodium and nearly a day's worth of fat and saturated fat.

The high level of saturated fat is worrisome because according to the Institute of Medicine, intakes of saturated fat should be kept as low as possible.[3] Furthermore, though recommendations suggest that approximately 20% to 35% of energy should come from fat; in this study, 45% was derived from fat.[3]

On a positive note, the results showed that *trans* fat levels were commendably low. Furthermore, meals advertised as being "healthy" were substantially healthier compared with average meals.

At present there is no data on the nutritional profile of meals from SDRs. Previous research on meals purchased from fast food chains reported an average of 1751 mg of sodium and 881 calories,[8] which is lower than the levels seen in SDR meals in this study.

Limitations include the fact that the data represented meals available in restaurants and did not reflect actual meals consumed by restaurant patrons. Furthermore, beverages, appetizers, and condiments that are often added by the consumer, and would further increase intake levels, were not accounted for.

Overall, the results of this study demonstrate that calorie, fat, saturated fat, and sodium levels are alarmingly high in breakfast, lunch, and dinner meals from multiple chain SDRs. Therefore, addressing the nutritional profile of restaurant meals should be a major public health priority.

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Study concept and design: Scourboutakos and L'Abbe.
Acquisition of data: Scourboutakos and Semnani-Azad.
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Failure of an Internet-Based Health Care Intervention for Colonoscopy Preparation: A Caveat for Investigators

Internet-based tools for health care delivery are proliferating. We examined the effectiveness of an online instructional video aimed at improving bowel preparation prior to colonoscopy. We hypothesized that an educational tool explaining the importance of preparation, the precolonoscopy diet, and how to administer the bowel purgative would lead to improved bowel preparation. However, what we learned during this randomized clinical trial of 2000 patients was that there may still be considerable limitations to reliance on the Internet for health care interventions.

Related article page 1376

Methods | Consecutive outpatients booked for colonoscopy by open-access at Boston Medical Center were randomized for this

institutional review board–approved study. The video, available in English and Spanish languages, was posted on our hospital's website. In addition to standard instructions, patients in the intervention arm were also mailed a 5 × 7-in card with instructions in English and Spanish stating, "Please visit www.bmc.org/digestivedisorders to watch an instructional video about preparing for your colonoscopy." This card was stapled to the front upper left corner of the written instructions. A nurse included a reminder to watch the video during our standard precolonoscopy telephone call.

We collected information about sex, age, race, ethnicity, education, insurance, Internet access, how many times (if any) they watched the video, and aspects related to bowel preparation. We used median income published by the Internal Revenue Service for patients' zip codes as a surrogate for income. We measured the association between demographic variables and Internet access using logistic regression. Trend testing was performed with the Cochran-Armitage trend test.

Results | After exclusions for missing bowel preparation information and failure to attend colonoscopy, we had 387 patients in the intervention arm and 350 controls. There were no significant demographic differences between the groups (data not shown). Among the 387 patients who received instructions to view the online video, only 24 (6%) reported watching the video, despite written and verbal instructions to do so. There were no technical problems reported by those instructed to watch the video, although we did not inquire as to why they did not view the video.

There were no differences in bowel preparation related end points. However, among 595 patients who provided information about Internet access, we found that only 378 patients (64%) had access (279 with Internet access at home; 99 with access only outside the home). We found no independent associations between having Internet access and sex, race, ethnicity, income, or type of insurance. However, age, and level of education were strongly associated with Internet access (**Table**). Older patients and less-well-educated patients were significantly less likely to have internet access (*P* value for trends, <.001). Age (*P* = .99) and education (*P* = .25) were not associated with likelihood of viewing the video.

Table. Measure of Association Between Demographic Variables and Having Internet Access

Variable (No. of Patients)[a]	% With Internet Access	Multivariate Odds Ratio (95% CI)[b]
Sex		
Male (273)	66	1 [Reference]
Female (320)	61	0.78 (0.54-1.13)
Age, y		
<50 (68)	79	1 [Reference]
50-54 (176)	76	0.81 (0.39-1.65)
55-59 (124)	60	0.40 (0.19-0.82)
60-64 (90)	62	0.43 (0.20-0.93)
65-69 (71)	49	0.31 (0.14-0.69)
≥70 (66)	39	0.18 (0.08-0.41)
Race		
White (141)	67	1 [Reference]
Black (273)	63	1.10 (0.70-1.73)
Asian (35)	69	1.08 (0.46-2.50)
Other (104)	63	1.39 (0.77-2.50)
Hispanic		
No (465)	65	1 [Reference]
Yes (130)	60	0.86 (0.50-1.47)
Highest completed level of education		
College (57)	88	1 [Reference]
Vocational school (38)	82	0.82 (0.31-2.12)
High school (224)	63	0.40 (0.24-0.67)
No high school (193)	49	0.25 (0.15-0.43)
Income, quintile		
1 (113)	64	0.93 (0.52-1.68)
2 (105)	62	0.91 (0.50-1.65)
3 (138)	64	1.03 (0.58-1.83)
4 (120)	59	0.82 (0.46-1.47)
5 (119)	68	1 [Reference]
Insurance		
Private insurance (131)	64	1 [Reference]
Medicare (118)	72	1.68 (0.96-2.95)
Medicaid (208)	62	1.14 (0.72-1.82)
Free care (104)	56	0.77 (0.45-1.31)

[a] Not all categories add to 595 owing to missing data.

[b] Multivariate model controls for all other variables in the table.

Discussion | We are unaware of previous trials examining the effect of Internet-based patient education on bowel preparation for colonoscopy. While a majority of our patients had Internet access, only a tiny fraction followed instructions to watch a brief, online video to help prepare for screening colonoscopy. Moreover, we identified older patients and those with less education as 2 populations at risk for lacking Internet access.

While studying Internet-based efforts to alter clinical outcomes has become increasingly popular,[1-5] like us, others have found limited impact on patient compliance or failure to improve the efficiency of health care delivery.[1,5] Furthermore, previous investigators have reported that particular racial and ethnic groups and those with low income are less likely to use the Internet for health education or personal health records.[6,7] However, these studies failed to account for education, which we found to be an important variable to explain differences in Internet access.

Our study was conducted at a single urban academic medical center, which may limit generalizability. Nonetheless, our patients represent a diverse mix of race, income, education level, and insurance status, suggesting that our findings may apply to other settings.

Our findings have important implications for future interventions aimed at improving health outcomes through the Internet. First, patient-directed educational endeavors that require additional efforts by patients, such as watching online

videos, may be limited by low participation rates even in the setting of Internet access. Second, such endeavors should include assessments of why patients fail to use online resources to allow appropriate alterations in strategy. Third, more aggressive efforts to help subjects view the video might have increased usage rates. For example, our nurse could have walked subjects through the process of accessing the video on the reminder call. Fourth, Internet-based patient resources may not be suitable for all older patients or those with limited education. This becomes an important consideration as the nation prepares itself for online insurance exchanges and an expansion of Medicare's Physician Compare website.

The Internet provides a unique platform for disseminating health information. However, limited patient interest and lower rates of internet access among older and less well-educated patients should be considered when planning Internet-based health care initiatives.

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Analysis and interpretation of data: Jacobson.
Drafting of the manuscript: Kakkar, Jacobson.
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Statistical analysis: Jacobson.
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Study supervision: Jacobson.

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Trial Registration: clinicaltrials.gov Identifier: NCT01099553

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Editor's Note

Patient Education: One Size Does Not Fit All

There is tremendous enthusiasm for web-based educational tools, particularly as more patients seek health information through the Internet. However, as Kakkar and Jacobson describe in this issue, there is a gap between the interest in web-based educational tools and real-world usage—only 6% of patients in the study viewed the online material. Their results are consistent with other studies showing low viewing rates of web-based interventions. Therefore, although web-based tools are an important avenue for patient education, this study highlights that even well-designed tools will not be effective if they are not used.

Patients have different educational needs and preferences. For example, some patients may not have access to or may not wish to use web-based educational tools. Thus, rather than offering all patients access to the same educational materials, physicians will likely need a menu of different resources using multiple modalities to most effectively educate and communicate with their patients. Assessing patient information needs, collecting usage data, and determining methods to match the right tools to the right patient should be part of future research to assist clinicians in providing the best education for their patients.

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RESEARCH LETTER

Management of Antimicrobial Allergies by Infectious Diseases Physicians

Misconceptions about true antimicrobial allergy may result in less effective, more expensive therapy and adverse outcomes.[1,2] Correctly identifying allergies could significantly reduce the immediate and direct risks of drug-related adverse events.[3] For example, 9 of 10 patients who reported an allergy to penicillin were, in fact, not, when evaluated by skin testing (ST).[4] To appropriately use first-line agents, it is important to determine if the patient truly has an antimicrobial allergy. Such efforts could contribute to better antimicrobial stewardship.

Supplemental content at jamainternalmedicine.com

Methods | To better understand physicians' perceptions and knowledge about allergy, a 10-item survey was e-mailed to Infectious Diseases Society of America (IDSA) Emerging Infections Network (EIN) members, a sentinel network of infectious diseases (ID) physicians across North America. Data were analyzed using SAS version 9.3 statistical software (SAS Institute Inc).

Results | Of 1411 IDSA EIN members, 744 (53%) responded: 72% were adult ID physicians; 23%, pediatric ID physicians; and 5%, both. A total of 78% had been consulted at least once in the last month about antimicrobial management of patients with