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lights the importance of dietary strategies focusing on both reducing sodium intake and increasing potassium intake. There are various ways to improve intakes of minerals in the population. Adherence to dietary guidelines, with ample fruit and vegetables, whole grains, and low-fat dairy products, should be promoted. Food companies can help by promoting the availability of healthier foods and also by improving the type and content of minerals in their products.

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HEALTH CARE REFORM

Patients' Willingness to Discuss Trade-offs to Lower Their Out-of-Pocket Drug Costs

Efforts to reform the US health care system have placed considerable attention on patients' financial burden from out-of-pocket drug costs. Patients frequently have difficulty paying for medications, and although they are encouraged to discuss ways to lower drug costs with physicians, such communication frequently fails to occur.[1-4] Physicians may be reluctant to initiate these cost discussions because some cost-cutting strategies involve potential trade-offs such as increased dosing frequency, risk of adverse effects, or lower treatment effectiveness.[1] Knowing patients' willingness to consider such less than optimal cost-lowering strategies could encourage physicians to discuss drug costs with their patients.

Methods. We conducted a 2004 patient survey as part of the longitudinal Translating Research Into Action for Diabetes Study to examine diabetes quality of care in 10 health plans and 6 states.[5] Participants reported whether they wanted physicians to talk about medications that cost less but (1) had to be taken more often, (2) may have a slightly higher chance effects, or (3) may not work as well.

Results. Of the 5085 patients (CASRO response rate, 75%), two-thirds were willing to discuss at least 1 of the 3 trade-off strategies. Patients said they wanted to be told about lower-cost drugs with a higher chance of adverse effects (38%), lower effectiveness (32%), or higher dosing frequency (59%). Among the 712 participants (14%) who said they had reduced medication use because of cost, rates were 47%, 42%, and 82%, respectively. Even among the 4373 participants who had not reduced medication use because of cost, rates were 37%, 30%, and 56%, respectively. Among those open to discussing trade-offs, only 19% said their physician usually or always discussed drug costs when prescribing. In multivariate analyses, participants with lower income, higher out-of-pocket drug costs, and poorer health were significantly more willing to discuss trade-offs (**Table**).

Comment. To our knowledge, this is the first large-scale study to examine the willingness of patients with diabetes to discuss specific types of trade-offs to lower drug costs with their physicians. The majority wanted physicians to discuss ways to lower drug costs even if it required higher dosing frequency, and 1 in 3 wanted to know about lower-cost drugs with potentially greater ad-

verse effects or lower effectiveness. Importantly, even among participants who did not decrease medication use because of cost, 1 in 4 wanted to know about cost-lowering strategies that could negatively affect health. Our findings are novel in that prior studies have only documented patients' willingness to discuss out-of-pocket drug costs in general and not specific strategies that would require trade-offs.[3,4] Physicians may be appropriately reluctant to discuss drug costs when they perceive cost-lowering strategies to be less optimal than patients' current medications.[1] However, physicians then risk that patients will reduce medication use to lower costs without telling them or getting their advice.[2] The fact that participants with poor (vs good) health were significantly more willing to consider such trade-offs highlights further that physicians need to be actively involved in advising patients on the appropriateness of such trade-offs.

A limitation of our study is that we did not present specific prescribing scenarios or measure patients' actual treatment choice. When faced with real rather than theoretical choices, patients may opt to pay more rather than making any trade-offs. Patients' willingness to make trade-offs may also vary substantially across disease targets.[6] However, our results support that patients are at least open to such discussions with physicians.

In conclusion, given patients' financial burden from drug costs and willingness to discuss drug costs, physicians should not avoid initiating such cost discussions, even if the available strategies to lower drug costs could require patients to accept potential trade-offs.

Table. Patients' Willingness to Discuss Trade-offs to Lower Out-of-Pocket Drug Costs

Characteristic	Higher Dosing Frequency		Higher Risk of Adverse Effects		Lower Effectiveness	
	Patients, %[a]	*P* Value	Patients, %[a]	*P* Value	Patients, %[a]	*P* Value
Age, y						
18-44 [Reference]	63		39		31	
45-64	61	.73	39	.99	31	.83
≥65	62		39		33	
Sex						
Female [Reference]	63	.06	36	.001	30	.02
Male	60		42		34	
Race/ethnicity						
White [Reference]	62		38		27	
African American	60		38		38	
Latino	58	.33	34	.02	30	<.001
Asian/Pacific Islander	64		44		38	
Other	63		46		37	
Education						
<High school	60		40		33	
High school graduate	60	.19	38	.82	38	.49
Some college or higher [Reference]	63		39		31	
Annual household income, $						
<25 000	64		41		34	
25 000-50 000	63	.008	42	.002	35	.02
>50 000 [Reference]	57		34		28	
Health status						
Excellent/very good [Reference]	55		35		29	
Good	63	<.001	39	.04	32	.049
Fair/poor	63		41		34	
Prescription medications, No.						
1-5 [Reference]	61	.42	40	.31	32	.63
≥6	63		38		32	
Has prescription drug insurance						
Yes	61	.18	38	.23	31	.01
No [Reference]	63		41		36	
Out-of-pocket drug costs (per month), $						
50 [Reference]	55		38		32	
51-100	61	<.001	36	.003	29	.08
101-150	68		42		33	
>150	77		46		37	

[a] Adjusted predicted percentage (adjusted for age, sex, race/ethnicity, education, income, health status, number of medications, have drug insurance, and monthly out-of-pocket drug costs).

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The Accuracy of Nutrition Information on the Internet for Type 2 Diabetes

A key strategy of diabetes self-management is medical nutrition therapy,[1] which has been shown to reduce hemoglobin A_{1c} and low-density lipoprotein cholesterol levels in patients with type 2 diabetes mellitus.[2,3] The American Diabetes Association (ADA) recommends a specific diet as part of medical nutrition therapy for secondary and tertiary prevention in patients with diabetes.[1]

Forty to sixty percent of Americans search for health-related information on the Internet.[4,5] Studies regarding health information accuracy on the Internet have shown that health advice varies in quality and accuracy regarding a wide range of topics.[6-8] There is a scarcity of literature regarding the accuracy of self-management strategies for chronic disease on the Internet, especially regarding type 2 diabetes. Therefore, we evaluated the accuracy of nutrition information for type 2 diabetes on the Internet.

Methods. A search of "diabetes and nutrition" was performed on both Google and Yahoo on March 18, 2010. The first 100 search results from each search engine were examined. Web sites were excluded from analysis for the following reasons: (1) need to register or pay for an account to access all information or if the Web site (2) was a portal to other Web sites, (3) was a link to a medical journal article, (4) contained information only for type 1 or gestational diabetes, (5) was for the sale of a particular product, eg, a book on diabetic nutrition, (6) was under the same domain as a previously included Web site, (7) was the official Web site of another country's diabetes association, or (8) was the Web site for diabetes education services at a medical center or other setting and did not include specific nutritional information. If a Web site appeared as a search result on both search engines, it was only counted once. Internal links to other pages within the same domain name were followed to try to account for as much information as possible. External links to other Web sites were not followed.

The information collected included recommendations for the 11 dietary aspects included in the established ADA nutrition guidelines for patients with diabetes[1] and when the Web site was last updated. The main outcome measures were the proportion of Web sites where information matched that of the ADA recommendations for each of the dietary aspects. Web sites were considered to match the recommendations if the Web sites explicitly stated the same recommendations as the ADA (**Table**). An overall matching score (maximum score, 11), which was the number of dietary aspects that matched the ADA guidelines, was also assigned to each Web site.

A comparison was also performed of Web sites that updated information before or after the most recent ADA recommendations in 2008. The χ^2 test was used to compare the proportions of Web sites that contained information matching each dietary aspect of the ADA recommendations. The independent, 2-sample *t* test was used to compare the mean matching score assigned to the Web

Table. American Diabetes Association Recommendations for Various Aspects of an Appropriate Diet for Type 2 Diabetes Mellitus[a]

Dietary Component	Recommendation
Total energy (kilocalories)	Reduce intake to aid in weight loss
Carbohydrates	Monitor intake (no specific percentage of calorie intake)
Fiber	14 g/1000 kcal or 25-30 g/d
Artificial sweeteners	Safe to use within FDA recommendation
Saturated fat	<7% of total daily calories
trans Fats	Minimal intake
Cholesterol	<200 mg/d
Sodium	Reduce intake (<2300 mg/d)
Fish	≥2 Nonfried servings/wk
Protein	Usual intake if no renal disease (15%-20% of calories)
Alcohol	≤1 Drink/d for women; ≤2 drinks/d for men

Abbreviation: FDA, Food and Drug Administration.
[a] Information from Bantle et al.[1]