

# Patient Preferences for Colorectal Cancer Screening: How Does Stool DNA Testing Fare?

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**S**ufficient evidence has accumulated to suggest that screening is a cost-effective strategy for reducing not only colorectal cancer mortality through early detection but also incidence through the detection and removal of premalignant adenomatous polyps.<sup>1-3</sup> Although screening is widely endorsed, a single “best” screening test has not been universally endorsed by authoritative groups.<sup>4-7</sup> Economic analyses to date suggest that each of the currently recommended options, including annual fecal occult blood testing (FOBT), flexible sigmoidoscopy every 5 years, the combination of annual FOBT and flexible sigmoidoscopy every 5 years, double-contrast barium enema (DCBE) every 5 years, and colonoscopy every 10 years, exhibit comparable cost-effectiveness.<sup>1,3,8</sup> This lack of consensus regarding an optimal screening strategy has stimulated interest in shared decision making as a potential strategy for increasing screening rates among average-risk patients. Shared decision making is a sequential, interactive process involving information exchange, values clarification, decision making, and mutual agreement between providers and their patients.<sup>9,10</sup> Studies demonstrating that patients have distinct preferences for the different colorectal screening strategies, which reflect the relative values they place on individual test features, lend further credence to this approach.<sup>11-21</sup>

The primary purpose of this study was to provide an updated assessment of patient preferences in light of widespread media attention promoting colonoscopy and the recent introduction of stool DNA testing (sDNA). sDNA is a novel screening strategy that offers a convenient, noninvasive alternative to existing screening tests. Like FOBT, sDNA can potentially detect neoplasia anywhere in the colon with sample collection that can be performed at home. Unlike FOBT, however, no dietary or medication restrictions are required and the sample can be collected using a simple device that obviates the need for handling stool. Multitarget sDNA has reported sensitivities for detecting colorectal cancer and advanced adenomatous polyps in the range of 52% to 91% and 18% to 82%, respectively, with specificities of approximately 88% to 95%.<sup>22-29</sup> The lowest sensitivities for both cancers (52%) and advanced adenomas (18%) were observed in the only prospective screening study

of asymptomatic, mostly average-risk patients.<sup>26</sup> Although the sensitivity was lower than previously reported, that same study found that sDNA was significantly more sensitive than FOBT for detecting cancers (52% vs 13%) but

**Objective:** To assess patient preferences for 1 of the recommended colorectal cancer screening options or stool DNA testing (sDNA), a novel noninvasive screening test.

**Study Design:** Cross-sectional survey of ambulatory-care patients in the primary care setting.

**Methods:** A decision aid was administered to eligible subjects, using a trained interviewer format. The decision aid described the pros and cons of colonoscopy, fecal occult blood testing (FOBT), flexible sigmoidoscopy, flexible sigmoidoscopy plus FOBT, double-contrast barium enema, and sDNA. After reviewing the decision aid, subjects were asked to identify a preferred screening option, test features influencing their choice, and level of interest in decision making.

**Results:** A total of 263 subjects completed the study. Colonoscopy (50.6%), sDNA (28.1%), and FOBT (18.3%) were preferred over the other screening options. Preferences were associated with race and education but not age, sex, or prior FOBT. Subjects who preferred colonoscopy rated accuracy as the most influential test feature, whereas those who preferred sDNA or FOBT rated concerns about discomfort or frequency of testing highest. Most subjects preferred a shared (54%) or patient-dominant (34%) decision-making process.

**Conclusions:** Colonoscopy was the most frequently preferred screening option for average-risk individuals. Noninvasive stool-based tests, particularly sDNA, were identified by most individuals who preferred an alternative to colonoscopy. These findings affirm the need to elicit patient preferences when selecting a screening option and suggest that provider-patient decision making can be tailored to include fewer options.

(*Am J Manag Care.* 2007;13:393-400)

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not advanced adenomas (15% vs 11%). Together, these data suggest that sDNA has medium to high sensitivity for detecting colorectal cancers but variable sensitivity for detecting advanced adenomatous polyps. In addition to being more sensitive than FOBT for detecting colorectal cancers,<sup>26</sup> existing data also suggest that sDNA is preferred over both FOBT and colonoscopy among patients experienced with all 3 tests.<sup>30</sup> This study addresses the important issue of whether patients lacking this experience would express similar preferences if educated about the pros and cons of the different screening modalities.

## METHODS

### Study Population

Asymptomatic, average-risk individuals between 50 and 75 years of age with no prior screening, except possibly FOBT, were deemed eligible for the study. Potential subjects unable to speak or read English were excluded. Patients with a personal history of colorectal neoplasia (cancer or polyps), inflammatory bowel disease, or a family history of colorectal neoplasia were excluded. Potential subjects were recruited from 2 sources: (1) direct patient referrals from primary care providers practicing at Boston Medical Center, an urban academic medical center, or the South Boston Community Health Center; and (2) flyers posted at various ambulatory care sites within Boston Medical Center. Participants were reimbursed \$20 to cover parking and travel expenses if extra visits were required.

### Study Design

The study used a cross-sectional survey design similar to that used in our prior patient preference study.<sup>14</sup> Written consent was obtained from eligible subjects by the research assistant just prior to initiating the survey. The survey was conducted using a structured interview format in which 1 of 2 research assistants verbally read the educational components of the survey instrument to the subject, who visually followed along. After concluding the educational component, subjects were asked to complete the decision aid's preference assessment, rank order test features influencing their choices, and answer a question related to decision-making autonomy. Demographic information was obtained at the end of the survey. The entire interview took approximately 20 minutes. All interviews were conducted by 1 of 2 research assistants in a private consultation room located in 1 of Boston Medical Center's outpatient clinics or the endoscopy unit. The study was reviewed and approved by Boston Medical Center's institutional review board prior to commencement.

### Survey Instrument

Our survey instrument consisted of 4 main parts: (1) an educational decision aid, (2) an assessment of patient preferences and factors influencing their choices, (3) an assessment of decision-making autonomy relevant to patients' choice of a colorectal cancer screening test, and (4) an assessment of demographic information and prior screening experience. The complete **survey instrument** can be viewed online at [www.ajmc.com](http://www.ajmc.com).

**Decision Aid.** Apart from information about sDNA, the decision aid used in this study was nearly identical to the one used in our prior study of average-risk patients.<sup>14</sup>

**Patient Preferences.** After completing the educational component of the instrument, patients were asked to rank order their preferences as to the screening strategies and the importance of the various test features in determining their preference. They also were asked about willingness to pay if their preference was not covered by insurance; response categories were "yes, regardless of the cost," "maybe, depending on the cost," and "no."

**Decision-making Autonomy.** We assessed patients' level of desire to participate in decision making regarding the choice of screening test using a single-item, 5-point scale as described by Strull et al.<sup>31</sup> For operational purposes, responses were categorized as "physician-dominant," "shared," or "patient-dominant" decision-making processes.

**Demographics and Prior Screening Experience.** Demographic information including age, sex, race/ethnicity, and education was ascertained. In addition, subjects were asked whether they had undergone prior FOBT.

### Sample Size and Power Calculations

Our analyses focus on describing patient screening preferences and identifying patient characteristics and attitudes associated with those screening preferences. In a previous study, we found that nearly 50% of patients preferred colonoscopy.<sup>14</sup> We determined that a sample of 260 subjects provided >80% power of detecting, at the 2-tailed  $P < .05$  level, a 20% difference in preferences between 2 subgroups of roughly equal size. Estimated percentages based on this sample are accurate to within  $\pm 6$  percentage points (the width of a 95% confidence interval [CI] for a percentage).

### Statistical Analysis

Descriptive statistics were used to characterize the study population, the screening preferences, and the important test features used to formulate these preferences. The percentages of patients preferring each of the screening options were compared using the  $\chi^2$  goodness-of-fit test for equal percentages.

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$\chi^2$  tests of independence were performed to assess associations between screening preference and subject characteristics defined by demographics, test feature influencing choice, and importance of insurance coverage. Similar analyses were performed to assess associations between desire to participate in the decision-making process and the same study group characteristics. Multiple logistic regression analysis was performed to identify independent determinants of screening preference. Significance was defined at the  $P < .05$  level. All statistical analyses were performed using SAS, version 8.2 (SAS Institute Inc, Cary, NC).

## RESULTS

### Sample Characteristics

A total of 263 subjects, including 201 primary care patients and 62 respondents to the posted flyers, were consecutively enrolled in the study between September 2002 and August 2003. **Table 1** summarizes the sample's demographics and screening experience. A majority of the subjects were 50 to 59 years of age (70.3%), female (62.4%), and white (57.8%) with a high school education or less (60.1%). Nearly 50% had undergone prior FOBT.

### Screening Test Preferences and Features Influencing Choice

Overall, 51.6% (95% CI = 44.5%, 56.6%) of patients preferred colonoscopy, 28.1% sDNA (95% CI = 22.7%, 33.6%), 18.3% FOBT (95% CI = 13.6%, 22.9%), 1.5% FOBT plus flexible sigmoidoscopy (95% CI = 0.4%, 3.9%), 1.1% flexible sigmoidoscopy (95% CI = 0.2%, 3.3%), and 0.4% DCBE (95% CI = 0.2%, 3.3%); the observed differences between colonoscopy and sDNA, sDNA and FOBT, and FOBT and the remaining 3 options were significant ( $P \leq .001$ ). Subjects who preferred sDNA or FOBT were more likely to select the alternative stool-based screening option as their second choice than those who chose colonoscopy (62% and 79%, respectively, vs 45%;  $P < .001$  and  $P < .05$ , respectively). Subjects who preferred colonoscopy, however, were also more likely ( $P < .001$ ) to select a stool-based test (33% sDNA, 12% FOBT) than DCBE (26%), flexible sigmoidoscopy (20%), or FOBT plus flexible sigmoidoscopy (8%) as their second choice.

Subjects who preferred colonoscopy were most likely to choose accuracy followed by frequency when asked which test features were most important in selecting a screening test; those who preferred sDNA were more likely to choose concerns about discomfort followed by accuracy; and those who preferred FOBT chose frequency most often, followed by con-

■ **Table 1.** Description of Sample (N = 263)

Characteristic	No. (%)
<b>Age, y</b>	
50-59	185 (70.3)
60-69	62 (23.6)
70+	16 (6.1)
<b>Sex</b>	
Male	99 (37.6)
Female	164 (62.4)
<b>Race/ethnicity</b>	
White	152 (57.8)
Black	92 (35.0)
Hispanic	12 (4.6)
Other	7 (2.7)
<b>Education</b>	
Less than high school	60 (22.8)
High school degree	98 (37.3)
College—not completed	42 (16.0)
College degree	40 (15.2)
Graduate degree	23 (8.7)
<b>Prior FOBT</b>	128 (48.7)

FOBT indicates fecal occult blood testing.

cerns about discomfort (**Table 2**). Subjects preferring colonoscopy were more likely ( $P < .05$ ) than those preferring sDNA or FOBT to say “yes” (43% vs 32% vs 15%) or “maybe” (46% vs 43% vs 39%) when asked whether they would still pick the same screening test if the test was not covered by their insurance and they had to pay out-of-pocket.

Subgroup comparisons also were performed to determine whether screening preferences varied on the basis of demographic factors, prior FOBT, or test feature influencing choice of screening test. Univariate analyses found significant associations between screening test preference and race/ethnicity ( $P = .002$ ) and test feature ( $P < .001$ ), as previously discussed, but not age, sex, education, or prior FOBT (**Table 3**). The importance of test accuracy (odds ratio [OR] = 9.56; 95% CI = 4.31, 21.22), black race (OR = 3.37; 95% CI = 1.73, 6.56), and lack of concern about discomfort (OR = 0.27; 95% CI = 0.08, 0.92) were independent determinants of a preference for colonoscopy by multiple logistic regression analysis (**Table 4**). Independent determinants of a preference for sDNA were more than a high school education (OR = 2.11; 95% CI = 1.12, 3.98), lack of concern about accuracy (OR = 0.31; 95%

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■ **Table 2.** Test Features Influencing Screening Test Preference

Most Important Test Feature*	Preference, No. (% <sup>†</sup> )						Total (N = 263)	P <sup>§</sup>
	Colonoscopy (n = 133)	sDNA (n = 74)	FOBT <sup>‡</sup> (n = 48)	FOBT + Flex Sig (n = 4)	Flex Sig (n = 3)	DCBE (n = 1)		
Frequency of testing	22 (17)	10 (14)	16 (33)	1 (25)	2 (67)	0	51 (19)	.015
Amount of discomfort	4 (3)	23 (31)	13 (27)	1 (25)	0	0	41 (16)	.001
Complications	7 (5)	3 (4)	4 (8)	1 (25)	0	1 (100)	16 (6)	.590
Preparation	4 (3)	7 (10)	2 (4)	0	1 (33)	0	14 (5)	.123
Time	2 (2)	10 (14)	6 (13)	0	0	0	18 (7)	.001
Accuracy	90 (68)	20 (27)	5 (10)	1 (25)	0	0	116 (44)	.001
Need for further testing if results abnormal	4 (3)	1 (1)	1 (2)	0	0	0	6 (2)	.746

\*Test features are listed in the order they are presented in the decision aid.

<sup>†</sup>Percentages are rounded off to the nearest whole number.

<sup>‡</sup>Data are missing for 1 subject.

<sup>§</sup>P values are for  $\chi^2$  tests of independence comparing the most important test features for colonoscopy, sDNA, and FOBT. FOBT plus sigmoidoscopy, sigmoidoscopy, and DCBE were excluded from the analysis because of the small number of respondents preferring these procedures. sDNA indicates stool DNA testing; FOBT, fecal occult blood testing; Flex Sig, flexible sigmoidoscopy; DCBE, double-contrast barium enema.

■ **Table 3.** Univariate Associations Between Demographic Factors or Prior FOBT and Screening Test Preference (N = 255)

Characteristic	No.	Preference			P*
		Colonoscopy	sDNA	FOBT	
<b>Age, y</b>					.293
50-59	180	53.3	27.8	18.9	
60-69	60	48.3	36.7	15.0	
70+	15	53.3	13.3	33.0	
<b>Sex</b>					.347
Male	94	46.8	34.0	19.2	
Female	161	55.3	26.1	18.6	
<b>Race/ethnicity</b>					.002
White	151	42.4	37.8	19.9	
Black	87	70.1	13.8	16.1	
Hispanic	12	50.0	25.0	25.0	
Other	5	33.3	33.3	33.0	
<b>Education</b>					.094
High school or less	152	54.0	24.3	21.7	
More than high school	103	49.5	35.9	14.6	
<b>Prior FOBT</b>					.308
Yes	125	52.8	25.6	21.6	
No	130	51.6	32.8	15.6	

\*P values are for  $\chi^2$  tests of independence.

sDNA indicates stool DNA testing; FOBT, fecal occult blood testing.

CI = 0.14, 0.68), and not being black (OR = 0.25; 95% CI = 0.12, 0.53). Although those who chose sDNA were less likely than those who selected colonoscopy to cite accuracy as the factor influencing their choice, those who chose sDNA were more likely to choose accuracy than those who chose FOBT, as previously noted. Too few subjects preferred FOBT for multivariate analysis.

**Decision-making Autonomy**

When asked who should decide which test to use for colorectal cancer screening, 54% preferred a shared process, 34% a patient-dominant process, and 12% a physician-dominant process. No significant associations were observed between level of desire to participate in the decision-making process and subject's age, sex, race/ethnicity, prior FOBT, or screening preference (Table 5). Subjects with more

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than a high school education, however, were more likely to favor a patient-dominant or shared process than those with a high school degree or less (93% vs 85%;  $P = .036$ ).

### DISCUSSION

Our study affirms the findings of prior studies demonstrating that patients have distinct preferences for 1 of the available colorectal cancer screening tests, preferences that reflect the relative value they place on individual test features. This study also found that colonoscopy was the most frequently preferred screening option, particularly among blacks and more educated subjects, and that noninvasive stool-based tests were preferred over flexible sigmoidoscopy, alone or in combination with FOBT, and DCBE. This interest in colonoscopy parallels the surge in demand for colonoscopy nationwide, suggesting that heightened public awareness efforts and endorsement by highly visible celebrities, such as Katie Couric,<sup>32</sup> have strongly influenced patient awareness and perceptions. The finding that sDNA is preferred over FOBT is noteworthy because it not only corroborates the results of our previous study of patients experienced with both tests,<sup>30</sup> but also suggests that patients lacking this experience find sDNA more acceptable because of perceptions of superior accuracy and a less demanding preparation. Curiously, subjects who preferred FOBT were more likely to cite frequency of testing as the most important feature influencing their choice, possibly because negative annual testing was perceived to provide more reassurance of good health than testing every 5 to 10 years.

Regardless, our study highlights the fact that patients segregate into 2 main groups: those who prefer the most accurate test (colonoscopy) and those who prefer the least invasive

tests (sDNA and FOBT). These observations have important clinical relevance, because they suggest that in the absence of an institutional or practice policy promoting a particular screening option (eg, flexible sigmoidoscopy), primary care clinicians could streamline their screening recommendations (eg, endorsement of colonoscopy as a first-line option and either sDNA or FOBT, depending on coverage, as a default option for those who decline colonoscopy) rather than feel compelled to discuss the full menu of options.

To date, at least 6 other studies, none of which included sDNA, have explored patient preferences for the full menu of recommended screening options.<sup>12,14-17,21</sup> Colonoscopy and

■ **Table 4.** Multiple Logistic Regression to Identify Factors Associated With a Preference for Colonoscopy or Stool DNA Testing\*

Characteristic	Adjusted OR (95% CI) <sup>†</sup>			
	Prefer Colonoscopy		Prefer sDNA	
<b>Age, y</b>				
50-59	Reference	—	Reference	—
60-69	0.67	(0.33, 1.37)	1.90	(0.94, 3.84)
70+	0.65	(0.18, 2.28)	0.50	(0.09, 2.75)
<b>Sex</b>				
Male	Reference	—	Reference	—
Female	1.58	(0.84, 2.97)	0.73	(0.39, 1.37)
<b>Race/ethnicity</b>				
White	Reference	—	Reference	—
Black	3.37 <sup>‡</sup>	(1.73, 6.56)	0.25 <sup>‡</sup>	(0.12, 0.53)
Hispanic	1.82	(0.42, 7.91)	0.50	(0.11, 2.24)
Other	0.90	(0.07, 11.62)	0.58	(0.05, 6.81)
<b>Education</b>				
High school or less	Reference	—	Reference	—
More than high school	0.59	(0.31, 1.13)	2.11 <sup>§</sup>	(1.12, 3.98)
<b>Prior FOBT</b>				
Yes	1.09	(0.58, 2.05)	1.38	(0.73, 2.61)
No	Reference	—	Reference	—
<b>Most important test feature</b>				
How often	1.47	(0.62, 3.50)	0.45	(0.17, 1.18)
Discomfort	0.27 <sup>§</sup>	(0.08, 0.92)	2.33	(0.94, 5.78)
Accuracy	9.56 <sup>‡</sup>	(4.31, 21.22)	0.31 <sup>‡</sup>	(0.14, 0.68)
Other	Reference	—	Reference	—
*Too few subjects preferred fecal occult blood testing for analysis. <sup>†</sup> Odds ratios for each predictor were adjusted for all other variables listed in the table. <sup>‡</sup> $P < .001$ . <sup>§</sup> $P < .05$ . OR indicates odds ratio; CI, confidence interval; sDNA, stool DNA testing; FOBT, fecal occult blood testing.				

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■ **Table 5.** Univariate Associations Between Demographic Factors, Prior FOBT, Preferred Screening Test, and Decision-making Preference (N = 263)

Characteristic	No.	Preference			P*
		Physician Dominant	Shared	Patient Dominant	
<b>Age, y</b>					.788
50-59	185	11.9	54.1	34.0	
60-69	62	9.7	51.6	38.7	
70+	16	18.8	56.2	25.0	
<b>Sex</b>					.108
Male	99	16.1	46.5	37.4	
Female	164	9.2	57.9	32.9	
<b>Race/ethnicity</b>					.131
White	152	8.6	52.0	39.5	
Black	92	16.3	55.4	28.3	
Hispanic	12	25.0	50.0	25.0	
Other	7	0.0	71.4	28.6	
<b>Education</b>					.110
High school or less	158	15.2	51.3	33.5	
More than high school	105	6.7	57.1	36.2	
<b>Prior FOBT</b>					.938
Yes	128	11.7	52.3	35.9	
No	133	12.0	54.1	33.8	
<b>Preferred screening test</b>					.800
Colonoscopy	133	12.8	51.1	36.1	
sDNA	74	9.5	59.5	31.1	
FOBT	48	12.5	47.9	39.6	
FOBT plus Flex Sig	4	0.0	75.0	25.0	
Flex Sig	3	33.3	66.7	0.0	
DCBE	1	0.0	100.0	0.0	

\*P values are for  $\chi^2$  tests of independence.  
sDNA indicates stool DNA testing; FOBT, fecal occult blood testing; Flex Sig, flexible sigmoidoscopy; DCBE, double-contrast barium enema.

Another important finding of our study is that most subjects expressed a desire to assume an active role in decision making related to test selection, thus corroborating the findings of Dolan and Frisina.<sup>15</sup> Unlike decision making related to other medical conditions, in which certain subgroups of patients who might be less inclined to participate (eg, older or less educated patients) have been identified,<sup>31,33-36</sup> this study found that most subjects—regardless of age, sex, race/ethnicity, prior FOBT, or screening preference—preferred a patient-dominated or shared process. Although subjects with less than a high school education were more likely to prefer a physician-dominated process than their more educated counterparts, the vast majority (85%) still preferred a patient-dominated or shared process. These observations further support the feasibility of complying with current recommendations by authoritative groups, such as the U.S. Preventive Services Task Force and the Multi-Society Task Force,<sup>5,7</sup> who endorse a shared decision-making approach when selecting an appropriate screening strategy because of the availability of multiple screening options with distinct advantages and disadvantages, and the lack

of consensus regarding an optimal strategy in terms of cost-effectiveness. The extent to which such an approach truly enhances adherence to colorectal cancer screening recommendations, however, remains speculative.

FOBT were identified as the preferred screening options in 2 of these studies; FOBT alone was preferred in 2 other studies; colonoscopy was preferred in 1 study; and FOBT plus flexible sigmoidoscopy was preferred in 1 study. Differences in study population, design, and methodology undoubtedly contributed to these disparate results. Despite these differences, each of these studies clearly demonstrated that patients have distinct preferences for a particular screening test, thus supporting the rationale for eliciting patient preferences when selecting a preferred screening option.

One major limitation of our study was failure to include cost among the test features discussed in the decision aid. Although each of the screening options has been deemed to be cost-effective compared with no screening,<sup>8,37</sup> both colonoscopy and sDNA were considerably more costly than FOBT, flexible sigmoidoscopy, or DCBE at the time of our

study. Consequently, individuals who valued cost considerations in their decision making might have been less inclined to choose colonoscopy or sDNA over a less expensive option. The extent to which cost considerations influence patient preferences, however, is unclear. Whereas Pignone et al<sup>19</sup> found that patient preferences for FOBT or flexible sigmoidoscopy were sensitive to out-of-pocket expenses, cost considerations were not a significant determinant of patient preferences for the full menu of options (except FOBT plus flexible sigmoidoscopy) in a study by Leard et al<sup>12</sup> or for a more limited set of options (FOBT, flexible sigmoidoscopy, or colonoscopy) in a study by Wolf et al.<sup>38</sup> Many of the patients participating in this study did respond “yes” or “maybe” when asked whether they would be willing to pay out-of-pocket if their preference was not covered by insurance; however, because no cost information was provided, the validity of these responses is debatable. Future studies are clearly needed to better define the impact of out-of-pocket costs on patient preferences.

Our study has several other limitations. First, our study design did not allow us to determine whether eliciting patient preferences as part of a shared decision-making process positively influences test ordering and patient adherence because of the inability to control for provider and system factors that are integral to this process. Second, it is important to acknowledge the possibility that interviewer bias or content bias related to our decision aid may have influenced patient preferences. Most notably, we may have overstated the accuracy of sDNA (medium-high) for detecting “precancerous” polyps. This rating was based on existing data for advanced adenomas (ie, tubular adenomas  $\geq 1$  cm or adenomas of any size with villous histology or high-grade dysplasia) at the time we initiated our study, which suggested that detection rates were in the 50% to 82% range.<sup>22,24</sup> Two recent studies published after completion of our study, however, reported sensitivities of only 18% and 26% for advanced adenomas.<sup>26,28</sup> Because most patients lack awareness about colorectal polyps and their significance,<sup>39</sup> it remains unknown whether subjects who selected sDNA because of accuracy would have changed their preference. Moreover, recent technological advances that have markedly improved sensitivity for colorectal cancers might also improve sensitivity for advanced adenomas.<sup>29</sup> The decision aid may also underestimate the time required to complete a colonoscopy because it fails to account not only for preparation time but also for the potential need to take additional time off because of conscious sedation. Third, our study also fails to include fecal immunochemical testing, a stool-based test designed to

### Take-away Points

Eliciting patient preferences has been advocated as a strategy for increasing participation in colorectal cancer screening. Our study found that:

- Patient preferences for the different screening options vary.
- Colonoscopy and stool-based tests, particularly stool-based DNA testing, are preferred over other options, thus suggesting that provider-patient decision making can be tailored to include fewer options.
- Most patients wish to participate in the decision-making process when selecting a preferred screening option.

detect fecal hemoglobin, and virtual colonoscopy as screening options.<sup>40</sup> Patient preference studies comparing virtual colonoscopy with conventional colonoscopy among patients who have undergone both tests have provided conflicting results.<sup>41</sup> No studies to date have explored patient preferences for either fecal immunochemical testing or virtual colonoscopy among unscreened patients.

In conclusion, our study found that average-risk patients without exposure to currently available colorectal cancer screening tests other than FOBT prefer colonoscopy and non-invasive stool-based tests, particularly sDNA, for colorectal cancer screening, and that most patients express a desire to participate in the decision-making process related to test selection. Moreover, our study also found that patient preferences reflect personal values placed on specific test features. Together, these findings support the feasibility of shared decision making as a strategy for promoting increased adherence to colorectal cancer screening and suggest that clinicians could tailor their recommendations to include a most accurate (ie, colonoscopy) and least invasive (ie, sDNA) option. Future studies are needed to determine the validity of this approach.

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**Funding Source:** Supported by EXACT Sciences Corporation, Marlborough, Mass.

**Previous Publication:** Published previously in abstract form (Gastroenterology 2004;126:M1498).

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**Author Disclosure:** The authors (PCS, SL, JTG, PAR, PZ, TCH) report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter discussed in this manuscript.

**Authorship Information:** Concept and design (PCS, SL, PAR); acquisition of data (SL, JTG, PAR, PZ); analysis and interpretation of data (PCS, JTG, PAR, TCH); drafting of the manuscript (PCS, SL); critical revision of the manuscript for important intellectual content (PCS, SL, JTG, PAR, PZ, TCH); statistical analysis (TCH); provision of study materials or patients (PAR, PZ); obtaining funding (PCS); administrative, technical, or logistic support (JTG, PAR); supervision (PCS, SL).

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