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US Primary Care Physicians' Prostate Cancer Screening Practices: A Vignette-Based Analysis of Screening Men at High Risk

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Abstract

Background: Limited information exists on primary care physicians' (PCPs) use of the prostate-specific antigen (PSA) test by patient risk category. We describe PCP responses to hypothetical patient scenario (PS) involving PSA testing among high-risk asymptomatic men.

Methods: Data were from the 2007 to 2008 National Survey of Primary Care Physicians' Practices Regarding Prostate Cancer Screening. PS#1: healthy 55-year-old white male with no family history of prostate cancer; PS#2: healthy 45-year-old African American male with no family history of prostate cancer; and PS#3: healthy 50-year-old male with a family history of prostate cancer. Data were analyzed in SAS/SUDAAN.

Results: Most PCPs indicated that they generally discuss the possible benefits/risks of PSA testing with the patient and then recommend the test (PS#1-PS#3 range, 53.4%-68.7%; $P < .001$); only about 1% reported discussing and then recommending against the test. For PS#3, compared to PS#1 and #2, PCPs were more likely to discuss and recommend the test or attempt to persuade the patient who initially declines the test. For PS#3, all clinicians generally would order/discuss the PSA test and not rely on the patient to ask.

Conclusion: Clinicians treat family history as an important reason to recommend, persuade, and initiate PSA testing.

Keywords

prostate-specific antigen test use, primary care physician practices, prostate cancer screening, prostate cancer, health literacy

Introduction

Prostate cancer is the most commonly diagnosed cancer and the second leading cause of cancer deaths among men in the United States.[1] Age, race, and family history are established risk factors for prostate cancer.[2] Incidence rates are 1.5 times higher, and age-adjusted death rates are nearly 2.5 times higher for African American (AA) versus white men.[1] A man with a first-degree relative—a father, brother, or son—who has had prostate cancer is 2 to 3 times more likely to have the disease himself.[3]

Despite disagreements about the evidence and efficacy of screening, most clinical and public health organizations recognize individuals of African descent and those with a family history as at increased risk of developing prostate cancer. Limited information is available on how prostate-specific antigen (PSA) test use might vary by patient risk category (ie, race or family history). Through the use of vignettes, we describe primary care physicians' (PCPs) responses to 3 hypothetical patient scenarios (PSs) to identify PCP practice patterns regarding PSA testing in asymptomatic men and those at higher risk because of race or family history.

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Methods

Survey Description

We analyzed data from the 2007 to 2008 National Survey of Primary Care Physician Practices Regarding Prostate Cancer Screening, a mailed survey of practicing PCPs. The survey included 3 PSs on prostate cancer screening. For purposes of the analysis, we considered the prostate cancer screening guidelines that were current during the period the survey was administered.[4-11] Detailed survey methods are described elsewhere.[12-14] The Centers for Disease Control and Prevention Institutional Review Board and the Office of Management and Budget reviewed and approved this survey.

Clinical Vignettes

The PCP respondents were asked about management of PSA screening in their primary practice site using 3 hypothetical PSs. PS#1 was an average-risk healthy 55-year-old white male (ie, with no current prostate-related symptoms and no serious comorbidities). PS#2 was a 45-year-old healthy AA male. PS#3 was a healthy 50-year-old male with a family history of prostate cancer. For each scenario, PCPs were asked, ''For this type of patient, I generally . . . '' Response options were ''Refer to a urologist for screening''; ''Order the PSA test without discussing the possible benefits and risks with the patient''; ''Discuss the possible benefits and risks of PSA screening with the patient, then recommend the test''; ''Discuss the possible benefits and risks of PSA screening with the patient, then let the patient decide whether or not to have the test''; ''Discuss the possible benefits and risks of PSA screening with the patient, then recommend against the test''; ''Do not order the PSA test or discuss the possible benefits and risks with the patient unless the patient asks.'' Clinicians were also asked, ''If you offer the PSA test and the patient declines, would you try to persuade him to have the test?'' Response options were ''yes,'' ''no,'' and ''don't know.''

Statistical Analyses

We used SAS version 9.3 with callable SUDAAN version 11.0.0 and final adjusted sample weights to calculate population-based estimates, 95% confidence intervals (CIs), and *P* values based on the Wald *F* test. We examined descriptive data on physician responses to each PS by physician demographics, practice characteristics, and selected knowledge/beliefs. We fitted separate multivariate logistic regression models to estimate the adjusted odds ratios (ORs) for the following outcomes: (1) PCPs discussing the possible benefits and risks of PSA screening with the patient and then recommending the test (model 1) and (2) PCPs attempting to persuade patients to have the PSA test if the patient declined (model 2). Scenarios were included in each model as an independent variable. A scenario by race interaction was also tested to determine whether the scenario effect on each outcome varied by PCP race. The provider ID was also included as a cluster term in the design statements to account for correlated responses by provider.

Results

The overall physician- and practice-related characteristics of the PCP sample were previously reported (response rate = 57%).[13] Briefly, PCPs were mostly male, white, non-Hispanic, were family/general practitioners, and had been practicing medicine for <20 years. For each scenario, most PCPs indicated they would discuss PSA screening, and then recommend the test (57.3% for PS#1, 53.4% for PS#2, and 68.7% for PS#3; $P < .001$; Table 1); PCPs recommended the test more often for patients with a positive family history. Less than 1% of PCPs said they discussed and then recommended against the test, for all PS#1-3. For PS#3 patients, PCPs less frequently let the patient decide whether or not to have the test (13.4%) upon discussion, compared to responses to other scenarios ($P < .001$). Additionally, for a PS#3 patient, no PCP responded that they ''do not discuss and do not order the PSA test unless the patient asks.'' PCPs (82.2%) generally said they would try to persuade a patient to have the PSA test after the patient initially declines if a patient has a family history of prostate cancer (PS#3; Table 1).

Overall, regardless of physician sex, age, race, training (medical doctor vs doctor of osteopathy), clinical specialty, and years of training (<20 vs ≥20 years), a high proportion of PCPs indicated that they would discuss and then recommend PSA testing for patients with a family history of prostate cancer (Table 2). Among PCP respondents who self-reported having ''moderate'' or ''a great deal of'' knowledge of prostate cancer screening guidelines, a greater proportion reported discussing and then recommending the PSA test compared to other response options, for all case scenarios, particularly for PS#3 (PS#1 60.5%, PS#2 55.9%, and PS#3 71.1%; Table 2). Similarly, an overall high proportion of PCPs who ''strongly agree/agree'' that providing PSA testing to average-risk patients is a reliable tool for cancer detection or helps reduce prostate cancer mortality in average-risk patients aged ≥50 years indicated that they would discuss and recommend the test for all PSs (Table 2). In contrast, among PCPs who ''strongly agree/agree'' that use of PSA testing in average-risk patients is difficult because of lack of scientific evidence of survival benefit, ≤40% said they would discuss and recommend the PSA test for an average-risk white male aged 55 (PS#1) or AA male aged 45 (PS#2); however, 58.8% of these PCPs said they would discuss and recommend the test for patients with a family history (PS#3; Table 2).

In multivariable regression analysis, PCPs had higher odds of discussing and then recommending the test for patients with a family history (PS#3; OR = 1.78, 95% CI [1.52-2.10]) compared to the average-risk 55-year-old white male (PS#1; Table 3). Furthermore, physicians aged 65 to 84, those with a ''moderate'' or ''a great deal of'' self-reported knowledge of prostate cancer screening guidelines, and those

Table 1. Physicians' Behaviors for Prostate Cancer Screening Among Average-Risk Versus High-Risk Patients in Hypothetical Scenarios.[a]

	Patient Scenario #1: Healthy[b] 55-Year-Old White Male With No Family History		Patient Scenario #2: Healthy[b] 45-Year-Old African American Male With No Family History		Patient Scenario #3: Healthy[b] 50-Year-Old Male With a Family History		
	Unweighted, n	Weighted, % (95% CI)	Unweighted, n	Weighted, % (95% CI)	Unweighted, n	Weighted, % (95% CI)	*P* Value
For this type of patient, physician generally . . .							
Refers to a urologist for screening	4	0.0 (0.0-0.1)	5	0.0 (0.0-0.1)	16	0.7 (0.3-1.7)	.08
Orders the PSA test without discussing the possible benefits and risks with the patient	184	16.6 (14.0-19.4)	152	12.6 (10.4-15.3)	175	16.1 (13.6-19.0)	.06
Discusses[c] and then *recommends the test*	734	57.3 (53.6-60.9)	711	53.4 (49.7-57.1)	881	68.7 (65.2-72.0)	<.001
Discusses[c] and then *lets him decide* whether or not to have the test	269	23.3 (20.4-26.6)	250	23.4 (20.4-26.6)	141	13.4 (11.1-16.1)	<.001
Discusses[c] and then *recommends against the test*	11	1.0 (0.5-2.1)	13	1.1 (0.5-2.2)	7	0.6 (0.2-1.6)	.58
Does not order the PSA test or discusses[c] unless the *patient asks*	14	1.5 (0.8-2.7)	79	8.7 (6.8-11.1)	0	–	<.001
Other	4	0.3 (0.1-1.1)	8	0.8 (0.3-1.9)	3	0.5 (0.2-1.5)	.46
If you offer the PSA test and the patient declines, would you try to persuade him to have the test?							<.001
Yes	720	52.5 (48.8-56.1)	787	57.1 (53.5-60.7)	1047	82.2 (79.2-84.8)	
No	443	42.0 (38.4-45.7)	381	38.6 (35.1-42.3)	155	15.3 (12.8-18.0)	
Don't know	62	5.5 (4.0-7.6)	46	4.3 (3.0-6.0)	26	2.7 (1.6-4.2)	

Abbreviations: CI, confidence interval; PSA, prostate-specific antigen.
[a]Unweighted frequency and weighted percentages of columns based on valid responses for each category.
[b]Healthy indicates having no current prostate-related symptoms and no serious comorbidities.
[c]Discusses the possible benefits and risks of PSA screening with the patient.

who ''strongly agree/agree'' that PSA screening reduces prostate cancer mortality in average-risk patients had higher odds of discussing and recommending the test than their referents across all PSs (Table 3).

The PCPs had higher odds of persuading the patient with a positive family history (PS#3) to have the PSA test compared to an average-risk 55-year-old white male patient (PS#1; OR = 6.04; 95% CI [4.65-7.83]; Table 3). The PCPs who ''strongly agree/agree'' that PSA screening reduces prostate cancer mortality in average-risk patients and those who ''strongly agree/agree'' that PSA testing is a reliable tool had higher odds of persuading the patient to have the PSA test even after the patient initially declines. Physicians who ''strongly agree/agree'' that PSA testing is difficult due to the lack of scientific evidence of survival benefit had lower odds of persuading the patient to have the PSA test. Additionally, the odds of persuading patients to have the PSA test among AA PCPs was 1.82 times the odds of non-AA PCPs. There was no statistically significant interaction by scenario and physician race for either model ($P = .35$ for model 1 and $P = .09$ for model 2; data not shown).

Discussion

Despite the lack of consensus about its efficacy in improving patient outcomes, PSA testing has been widely incorporated into routine primary care for the past 3 decades.[15] Prior studies have shown that 67% of family practitioners and 40% of internists routinely screen men aged ≥50 years.[16] In a small-scale survey of 1 community-based and 2 academic practices between 2007 and 2008, 54.8% (n = 135) of all physicians believed an annual PSA test for asymptomatic men aged >50 to be the standard of care.[17] Our vignette-based analysis show that when PCPs were given a hypothetical PS and asked how they manage PSA screening, the most common practice among PCPs (53%-69%) was to discuss and then recommend the PSA test. During the period the survey was administered (2007-2008), virtually all organizations recommended that physicians should engage in shared decision making to help patients make informed decisions about screening.[9,11,18-20] Previous data from the National Survey of PCP Practices Regarding Prostate Cancer Screening reported that approximately 80% of PCPs reported routinely discussing prostate cancer screening and involved age-appropriate male patients in the decision to test.[13]

Although discussions are generally reported to occur, the content of discussions and the extent of the ''shared'' decision process are complex and difficult to assess; as other studies have found, decisions about prostate cancer screening appear to be unilaterally made by the physician.[13,21] However, approximately one-fourth of PCPs in this analysis said they would discuss and then let the patient decide to have the PSA test for

Table 2. Physician and Practice Characteristics for Physicians Who Said They Would Discuss the Possible Benefits and Risks of PSA Screening and Then Recommend the PSA Test, by Patient Scenario Type.[a]

		Patient Scenario #1: Healthy[b] 55-Year-Old White Male With No Family History	Patient Scenario #2: Healthy[b] 45-Year-Old African American Male With No Family History	Patient Scenario #3: Healthy[b] 50-Year-Old Male With a Family History of Prostate Cancer
	n (%)	Recommends the Test, % (95% CI)	Recommends the Test, % (95% CI)	Recommends the Test, % (95% CI)
Physician characteristic/belief				
Sex				
Male	775 (70.4)	58.7 (54.2-63.0)	53.6 (49.1-58.1)	68.1 (63.8-72.1)
Female	479 (29.6)	54.3 (47.6-60.8)	53.0 (46.3-59.6)	70.3 (63.7-76.1)
Age				
31-<48	593 (45.8)	52.3 (46.8-57.8)	51.1 (45.6-56.6)	68.8 (63.4-73.7)
48-<65	580 (46.4)	58.7 (53.2-63.9)	52.2 (46.7-57.6)	66.5 (61.2-71.4)
65-84	66 (7.8)	77.8 (63.8-87.4)	76.0 (61.9-86.0)	82.4 (69.0-90.8)
Race				
White	529 (75.0)	55.2 (50.8-59.5)	51.4 (47.0-55.7)	66.6 (62.3-70.6)
Black/African American	604 (4.8)	64.7 (61.0-68.3)	65.1 (61.4-68.6)	76.6 (73.3-79.7)
Asian	123 (19.0)	61.6 (52.5-70.0)	55.8 (46.6-64.6)	73.5 (64.8-80.8)
Native Hawaiian/Pacific Islander	7 (1.0)	66.2 (26.3-91.5)	68.0 (28.3-92.0)	78.0 (28.4-96.9)
Native America/Alaska Native	17 (1.4)	77.4 (42.9-94.0)	67.0 (34.3-88.7)	98.9 (95.5-99.7)
Ethnicity				
Hispanic	38 (5.0)	61.3 (44.5-75.8)	53.1 (36.7-68.9)	67.8 (50.6-81.3)
Non-Hispanic	1217 (95.0)	57.2 (53.4-60.9)	53.5 (49.7-57.3)	68.8 (65.2-72.3)
Training				
Medical doctor (MD)	1162 (88.5)	56.0 (52.1-59.9)	52.6 (48.6-56.5)	67.8 (64.0-71.4)
Doctor of osteopathy (DO)	94 (11.5)	67.4 (56.0-77.1)	59.9 (48.4-70.4)	75.5 (64.5-84.0)
Clinical specialty				
Family practice/general practice	738 (61.4)	58.6 (53.9-63.1)	52.9 (48.2-57.6)	70.8 (66.4-74.9)
Internal medicine	517 (38.6)	55.1 (48.9-61.1)	54.4 (48.2-60.4)	65.1 (59.0-70.7)
Years practicing medicine				
<20 years	810 (60.2)	53.7 (48.9-58.4)	51.6 (46.8-56.4)	68.8 (64.1-73.1)
20-57 years	436 (39.8)	62.7 (56.9-68.3)	56.6 (50.6-62.4)	68.3 (62.5-73.6)
Practice setting characteristics				
Practice location				
Private practice	826 (74.3)	60.6 (56.2-64.9)	55.2 (50.7-59.6)	70.5 (66.2-74.4)
Other	359 (25.7)	46.3 (38.9-53.8)	46.9 (39.6-54.4)	62.3 (54.6-69.3)
Practice type				
Solo	392 (28.7)	63.3 (56.1-70.0)	56.3 (49.0-63.4)	71.4 (64.4-77.4)
Single group	444 (41.5)	56.6 (50.8-62.3)	55.6 (49.7-61.3)	71.3 (65.7-76.3)
Multispecialty group	341 (27.1)	51.3 (44.1-58.4)	46.6 (39.6-53.9)	61.0 (53.7-67.8)
Other	43 (2.7)	57.2 (35.0-76.8)	68.5 (45.1-85.2)	82.7 (59.5-94.0)
Hours worked/week on patient care				
<39 hours	525 (46.4)	52.1 (46.5-57.7)	51.4 (45.7-57.0)	64.7 (59.1-70.0)
≥40 hours	656 (53.6)	61.3 (56.0-66.2)	54.8 (49.5-60.0)	71.7 (66.7-76.2)
Metropolitan location				
Rural	262 (26.1)	57.1 (49.6-64.2)	52.1 (44.6-59.5)	70.8 (63.5-77.1)
Suburban	466 (43.3)	58.9 (53.2-64.5)	56.2 (50.4-61.8)	68.7 (63.1-73.8)
Urban—inner city	242 (11.6)	51.8 (40.9-62.5)	49.0 (38.3-59.8)	65.4 (54.3-75.1)
Urban—not inner city	249 (19.1)	56.2 (47.5-64.5)	54.0 (45.3-62.4)	68.1 (59.6-75.6)
% of white male patients				
≤25	264 (7.9)	63.5 (50.8-74.6)	57.9 (45.0-69.7)	69.7 (56.4-80.3)
26-≤50	284 (16.2)	49.1 (39.9-58.3)	51.1 (41.9-60.3)	64.9 (55.5-73.2)
51-≤75	223 (20.5)	60.5 (51.9-68.4)	55.8 (47.2-64.1)	71.2 (63.0-78.3)
76-≤100	439 (55.4)	57.2 (52.1-62.2)	52.8 (47.6-57.9)	68.7 (63.8-73.3)

(continued)

Table 2. (continued)

		Patient Scenario #1: Healthy[b] 55-Year-Old White Male With No Family History	Patient Scenario #2: Healthy[b] 45-Year-Old African American Male With No Family History	Patient Scenario #3: Healthy[b] 50-Year-Old Male With a Family History of Prostate Cancer
	n (%)	Recommends the Test, % (95% CI)	Recommends the Test, % (95% CI)	Recommends the Test, % (95% CI)
% of African American male patients				
≤25	656 (77.8)	57.0 (52.6-61.2)	52.7 (48.3-57.0)	69.2 (65.1-73.1)
26-≤50	275 (15.9)	54.9 (45.4-64.0)	53.2 (43.7-62.4)	63.7 (54.2-72.2)
51-≤75	115 (3.4)	60.8 (41.0-77.5)	62.0 (42.1-78.5)	72.8 (51.2-87.2)
76-≤100	162 (2.9)	67.0 (48.7-81.3)	69.7 (50.8-83.7)	78.1 (60.5-89.2)
Physician knowledge, beliefs, and practice style				
Self-reported knowledge level of prostate cancer screening guidelines				
No/little	165 (15.2)	41.1 (31.9-51.1)	42.9 (33.6-52.9)	58.1 (48.2-67.4)
Moderate/great deal	1042 (84.8)	60.5 (56.4-64.5)	55.9 (51.8-60.0)	71.1 (67.2-74.7)
Providing PSA testing to avg-risk patients				
Strongly agree/agree permits me to use a reliable tool for cancer detection	863 (71.0)	64.0 (59.5-68.2)	57.8 (53.2-62.2)	71.6 (67.3-75.5)
Strongly agree/agree helps me protect from malpractice claims	772 (70.0)	58.2 (53.6-62.6)	54.6 (50.0-59.2)	69.8 (65.4-73.9)
Strongly agree/agree helps reduce prostate cancer mortality in avg-risk patients age 50 years and older	743 (60.0)	67.1 (62.3-71.6)	60.1 (55.2-64.9)	74.2 (69.6-78.3)
Strongly agree/agree is difficult due to lack of scientific evidence of survival benefit	244 (22.8)	35.3 (28.1-43.2)	40.0 (32.5-48.0)	58.8 (50.7-66.4)

Abbreviations: avg, average; CI, confidence interval; PSA, prostate-specific antigen.
[a]Unweighted frequency and weighted percentages of columns based on valid responses for category.
[b]Healthy indicates having no current prostate-related symptoms and no serious comorbidities.

the average-risk (PS#1) and AA male (PS#2) patient, but this was less often the response for patients with a family history (PS#3). For a PS#3 patient, PCPs regardless of race were more likely to discuss and then recommend the PSA test to the patient and also were more likely to try to persuade the patient to have the test, compared to an average-risk patient.

The PCPs appeared to identify positive family history as a higher risk category than AA race and an important reason to discuss, recommend, and try to persuade the patient to have the PSA test. Since prostate cancer has few known risk factors and a relatively high proportion of familial cases compared to other cancers,[22] recognition of family history and engagement in informed discussions about screening is especially important for this group. Although familial aggregation of prostate cancer could be related to the fact that prostate cancer is a common disease, hereditary factors and genetic variants associated with particular races/ethnicities are notable considerations for increased familial risk of prostate cancer and are potential attributes that could result in higher incidences.[23]

Furthermore, PCPs who "strongly agreed or agreed" that PSA testing is difficult due to the lack of scientific evidence of survival benefit were less likely to recommend/persuade PSA testing. These data are also consistent with previously published results from a smaller Texas-based study of 87 PCPs from a university-based family medicine clinic and 6 community health centers, which showed that beliefs in the scientific evidence and efficacy for PSA screening influenced physicians' efforts to persuade a patient to be tested; specifically, physicians who questioned the scientific evidence for screening less frequently tried to persuade a patient to be tested.[24]

A major strength of this study is that it represents a national sample of US PCPs. Additionally, this study oversampled AA PCPs to enable more detailed analyses on clinical practice patterns of this subpopulation. We also analyzed data from clinical vignettes, which is an effective tool for eliciting clinician decision-making practices.[25] The survey instrument was developed based on rigorous review of the literature, focus groups, and pilot testing.[26] Limitations of the analysis are that the survey was based on PCP self-reports and results were not validated by chart review or an objective data source. Second, as with most surveys and participant recruitment strategies, selection bias is possible. Third, we were unable to compare the participants who responded to our survey with those who received it but chose not to complete the survey to assess the impact of nonresponse bias. Fourth, results presented could differ from physician screening behavior following the 2012 US Preventive Services Task Force (USPSTF) recommendation against PSA testing for all men, even those at high risk. Although some studies suggest there may be a decline in PSA

Table 3. Adjusted Odds of Physicians Who Discuss the Possible Benefits and Risks of PSA Screening With the Patient and Then Recommends the PSA Test and Those Who Try to Persuade the Patient to Have the PSA Test.[a]

	Model 1 Physician Who Discuss the Possible Benefits and Risks of PSA Screening With the Patient, Then Recommends the Test		Model 2 Physicians Who Said They Would Try to Persuade the Patient to Have the PSA Test, After the Patient Initially Declines the Test	
Physician Characteristic/Belief	OR	95% CI	OR	95% CI
Patient scenario				
#1	Ref		Ref	
#2	0.87	(0.75-1.00)	**1.26**	(1.06-1.49)
#3	**1.78**	(1.52-2.10)	**6.04**	(4.65-7.83)
Sex				
Male	Ref		Ref	
Female	1.35	(0.96-1.91)	1.04	(0.72-1.51)
Race				
Non-African American/Black	Ref		Ref	
Black/African American	1.12	(0.82-1.53)	**1.82**	(1.22-2.71)
Ethnicity				
Hispanic	0.85	(0.40-1.81)	1.73	(0.62-4.78)
Non-Hispanic	Ref		Ref	
Age				
31-<48	Ref		Ref	
48-<65	0.76	(0.49-1.18)	0.71	(0.43-1.19)
65-84	1.99	(0.82-4.81)	1.17	(0.43-3.14)
Clinical specialty				
Family practice/general practice	Ref		Ref	
Internal medicine	0.90	(0.64-1.26)	1.12	(0.78-1.60)
Years practicing medicine				
<20	Ref		Ref	
20-57	1.35	(0.85-2.13)	1.54	(0.90-2.63)
Metropolitan location				
Rural	ref		ref	
Suburban	1.10	(0.75-1.63)	1.17	(0.77-1.79)
Urban, inner city	0.80	(0.46-1.38)	0.83	(0.45-1.52)
Urban, not inner city	1.03	(0.63-1.69)	0.96	(0.58-1.61)
Percentage of white male patients				
≤25	Ref		Ref	
26-≤50	0.74	(0.33-1.65)	1.09	(0.50-2.38)
51-≤75	0.91	(0.40-2.09)	0.83	(0.38-1.84)
76-≤100	0.81	(0.36-1.83)	0.59	(0.27-1.26)
% of African American male patients				
≤25	Ref		Ref	
26-≤50	0.92	(0.54-1.58)	0.85	(0.49-1.48)
51-≤75	1.74	(0.72-4.21)	0.99	(0.39-2.53)
76-≤100	2.02	(0.79-5.13)	1.50	(0.45-4.99)
Self-reported knowledge level of prostate cancer screening guidelines				
No/little knowledge	Ref		Ref	
Moderate knowledge	**1.80**	(1.18-2.74)	1.19	(0.74-1.90)
Great deal of knowledge	**2.36**	(1.37-4.07)	1.60	(0.83-3.08)
Helps me protect from malpractice claims				
Strongly disagree/disagree	Ref		Ref	
Neither	1.31	(0.70-2.45)	1.62	(0.85-3.06)
Strongly agree/agree	1.32	(0.75-2.34)	1.67	(0.94-2.96)
Permits me to use a reliable tool for cancer detection				
Strongly disagree/disagree	Ref		Ref	
Neither	1.05	(0.59-1.85)	1.74	(0.99-3.07)
Strongly agree/agree	1.27	(0.74-2.16)	**2.99**	(1.74-5.15)

(continued)

Table 3. (continued)

Physician Characteristic/Belief	Model 1 Physician Who Discuss the Possible Benefits and Risks of PSA Screening With the Patient, Then Recommends the Test		Model 2 Physicians Who Said They Would Try to Persuade the Patient to Have the PSA Test, After the Patient Initially Declines the Test	
	OR	95% CI	OR	95% CI
Reduce prostate cancer mortality in average-risk patients aged 50 years and older				
Strongly disagree/disagree	Ref		Ref	
Neither	1.49	(0.90-2.44)	1.23	(0.76-2.00)
Strongly agree/agree	**2.30**	(1.43-3.71)	**2.12**	(1.31-3.43)
Lack of scientific evidence of survival benefit				
Strongly disagree/disagree	Ref		Ref	
Neither	1.42	(0.94-2.14)	0.76	(0.49-1.16)
Strongly agree/agree	0.70	(0.45-1.09)	**0.34**	(0.22-0.53)

Abbreviations: CI, confidence interval; OR, odds ratio; PSA, prostate-specific antigen.
[a]Bold notation indicates statistically significant at $P < .05$.

testing by PCPs, it did not explore testing by patient-risk category.[27]

The 2012 USPSTF recommendations against prostate cancer screening generated much discussion among professional groups and the general public about the weight of potential harms and benefits of prostate cancer screening.[28] Despite the discussion on the mortality benefit of routine, population-based prostate cancer screening,[29,30] some organizations have suggested that men at high risk (including AA men) might be more likely to benefit from screening and support its use.[31] The USPSTF acknowledges the need for the continued practice of shared decision making between patients and providers and recognizes that changing clinical practice is a difficult process and not likely to occur immediately.

The current study suggests that PCPs are more likely to discuss and recommend PSA testing for high-risk patients with a family history of prostate cancer. When faced with variability in recommendations, PCPs face challenges to delivering quality care. Since physician knowledge and beliefs can influence what occurs in clinical practice,[32] there is a need for enhanced provider and patient education and improved strategies to facilitate shared decision making. Additionally, the risk-to-benefit ratio for preventive services is an individual decision, and ongoing efforts to promote informed discussions and shared decisions can increase quality in clinical practice.

Authors' Note

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention (CDC).

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