Letters

RESEARCH LETTER

Variation Among Primary Care Physicians in Prostate-Specific Antigen Screening of Older Men

No organization recommends prostate-specific antigen (PSA) screening in men older than 75 years. Nevertheless, testing rates remain high.[1,2] We hypothesized that primary care physicians (PCPs) would vary substantially in PSA screening rates and that much of the variance in whether an older man received a PSA test would depend on which PCP he saw.

Methods | Using complete Medicare Part A and B data for Texas, we selected PCPs whose patient panels included at least 20 men 75 years or older without a prior diagnosis of prostate cancer. Primary care physicians were identified as generalist physicians who saw a man on 3 or more occasions in 2009.[3] Patients enrolled in health maintenance organizations (approximately 25% of men ≥ 75 years) were not included because of incomplete data on testing and diagnoses. We assessed screening PSA tests ordered by any physician, or restricted to those ordered by the patient's PCP, using the algorithm developed by Walter et al[1] (**Table**, footnote c). We then conducted a multilevel, multivariable logistic regression analysis controlling for the patient characteristics listed in the Table. We estimated the PSA screening rate in 2010 for men 75 or older, adjusted for patient characteristics, for each PCP. We also calculated the

Table. Prostate-Specific Antigen Screening by Characteristics of Older Male Medicare Beneficiaries in Texas

Patient Characteristics[a]	Patients, No. (%) (N = 61 351)	Patients Received PSA Screening in 2010, % (95% CI)[b]	
		Any PSA Screening	PSA Screening Ordered by Patient's Primary Care Physician
Overall		41.1 (40.7-41.5)	28.8 (28.4-29.2)
Age, y			
75-79	28 102 (45.8)	48.7 (48.1-49.3)	34.8 (34.2-35.4)
80-84	19 264 (31.4)	39.8 (39.1-40.5)	27.4 (26.8-28.0)
≥85	13 985 (22.8)	27.8 (27.1-28.5)	18.7 (18.1-19.3)
Race/ethnicity[c]			
White	50 716 (82.7)	41.3 (40.9-41.7)	29.0 (28.6-29.4)
Black	1696 (2.8)	39.5 (37.2-41.8)	28.5 (26.4-30.6)
Hispanic	7912 (12.9)	40.9 (39.8-42.0)	27.6 (26.6-28.6)
Other	999 (1.6)	39.7 (36.7-42.7)	29.5 (26.7-32.3)
No. of comorbidities			
0	7998 (13.0)	43.2 (42.1-44.3)	31.6 (30.6-32.6)
1	16 876 (27.5)	45.0 (44.2-45.8)	32.6 (31.9-33.3)
2	15 441 (25.2)	42.5 (41.7-43.3)	30.1 (29.4-30.8)
3	9584 (15.6)	38.6 (37.6-39.6)	26.2 (25.3-27.1)
≥4	11 452 (18.7)	34.2 (33.3-35.1)	21.9 (21.1-22.7)
Medicaid eligible			
Yes	5738 (9.4)	39.9 (38.6-41.2)	26.8 (25.7-27.9)
No	55 613 (90.6)	41.3 (40.9-41.7)	29.0 (28.6-29.4)
Location[d]			
Metro	47 797 (77.9)	41.0 (40.6-41.4)	29.2 (28.8-29.6)
Nonmetro	12 442 (20.3)	41.5 (40.6-42.4)	27.7 (26.9-28.5)
Rural	1106 (1.8)	43.5 (40.6-46.4)	26.6 (24.0-29.2)
High school graduates in zip code area, %			
≤74	13 660 (22.3)	40.7 (39.9-41.5)	27.8 (27.0-28.6)
75-83	14 705 (24)	39.8 (39.0-40.6)	26.4 (25.7-27.1)
84-90	14 819 (24.2)	40.0 (39.2-40.8)	28.8 (28.1-29.5)
>90	16 371 (26.7)	43.5 (42.7-44.3)	31.8 (31.1-32.5)
No. of physicians visited			
1	15 909 (25.9)	40.4 (39.6-41.2)	32.6 (31.9-33.3)
2	18 278 (29.8)	40.6 (39.9-41.3)	29.9 (29.2-30.6)
3	13 168 (21.5)	42.4 (41.6-43.2)	28.4 (27.6-29.2)
≥4	13 996 (22.8)	41.5 (40.7-42.3)	23.6 (22.9-24.3)

Abbreviation: PSA, prostate-specific antigen.

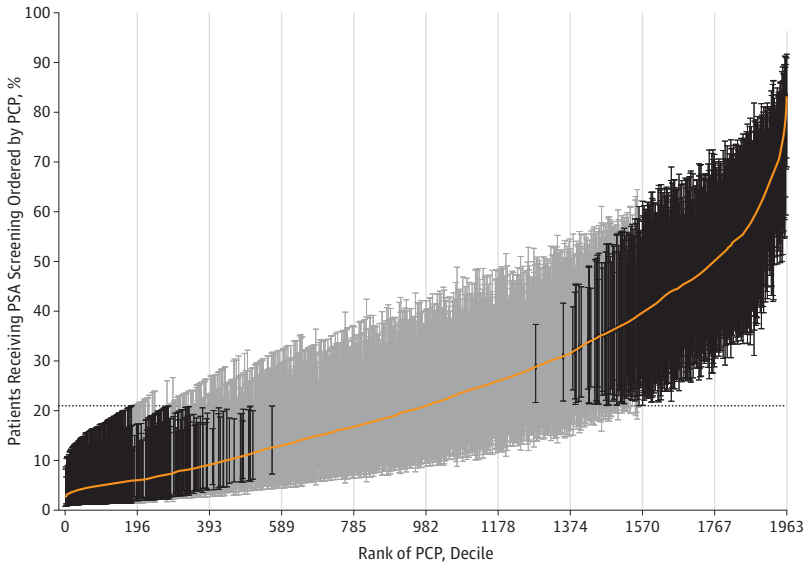
[a] Because of the large sample size, all the differences in PSA screening rates among the various patient characteristics are statistically significant ($P < .001$ by χ^2 statistics).

[b] A screening PSA test was identified in a manner similar to that used by Walter et al.[2] Men with any evidence of prostate cancer diagnoses or treatment in the prior 3 years were excluded. Also, PSA tests in men who had symptoms (hematuria, back pain, weight loss, urinary obstruction) in the prior 3 months were considered diagnostic and not counted.

[c] Race/ethnicity information was obtained from the Medicare Part D denominator file.

[d] Urban and rural designations were according to definitions developed by the US Department of Agriculture.

Figure. Cumulative Distribution of 1963 Texas Primary Care Physicians (PCPs) by the Adjusted Percentage of Their Male Patients 75 Years or Older Who Underwent Prostate-Specific Antigen (PSA) Screening Ordered by Their PCP in 2010



Solid orange line indicates cumulative distribution; horizontal dotted line indicates the mean value for the 50th percentile. Primary care physicians are ranked from those with the lowest percentage of patients who underwent PSA screening to the highest. Only PCPs with at least 20 male patients 75 or older in their panels are included to produce estimates of PSA screening rates with reliability greater than 0.80. Error bars indicate the 95% CIs of the estimates, derived from a multilevel model including all the variables listed in the Table. Dark error bars indicate PCPs whose PSA screening rates were significantly different from the mean rate for all PCPs. Compared with the mean rates, 314 PCPs had significantly lower rates and 474 had significantly higher rates.

intraclass correlation coefficient (ICC) at the PCP level. This study was approved by the University of Texas Medical Branch institutional review board. SAS version 9.2 (SAS Institute Inc) was used for all analyses.

Results | Our sample included 1963 PCPs whose patient panels included at least 20 men 75 or older (61 351 men). Overall, 41.1% of the men received PSA screening and 28.8% received PSA screening ordered by their PCPs (Table). Both rates declined with patient age. There were small differences in rates of testing by patient ethnicity, markers of socioeconomic status, and location (urban vs rural).

The **Figure** presents a cumulative distribution of estimated PSA screening rates for each of the 1963 PCPs, showing only the rates for PSA tests ordered by the PCP and adjusted for all the characteristics in the Table in the multilevel model. In all, 474 PCPs (24.2%) had rates significantly greater than the mean, with a mean rate of 49.8% (95% CI, 48.8%-50.8%), whereas 314 PCPs (16.0%) had significantly lower rates, with a mean rate of 6.1% (95% CI, 5.9%-6.3%).

In the model assessing PSA screening ordered by the patient's PCP, the ICC was 0.27, indicating that 27% of the variance in whether a man received PSA screening was explained by which PCP he saw. Specific patient characteristics (eg, age, comorbidity) explained only 3.7% of the variance in whether a patient received a PSA test ordered by his PCP.

Discussion | The high variability among PCPs in PSA screening, with a 10-fold difference in rates between the highest and lowest deciles of PCPs, has not been found in other studies of PCP behavior. For example, using similar methodology and data sources for Texas PCPs, ICCs were 0.10 and 0.09 for receipt of mammography and colorectal cancer screening, respectively, compared with 0.27 for PSA screening.[4,5] With PSA screening, which PCP a man saw explained approximately 7 times more of the variance in PSA screening than did the measurable patient characteristics.

Limitations of this study include the accuracy of identifying the PCP,[3] exclusion of patients in health maintenance organizations, lack of information on patient preference, and the use of data from a single year in Texas. Southern states tend to have higher utilization rates for a number of tests and procedures. We assessed only screening PSA tests, not tests ordered to evaluate symptoms, but some symptoms may not have been coded. The rate of all PSA testing, including testing in men with symptoms, was greater than 50% in men 75 years or older in 2010 in Texas.

The high variability among PCPs in ordering PSA screening for older men requires additional study to understand its causes. It has been suggested that overtesting rates be included as quality measures of PCPs.[6] Medicare data can be used to generate such measures.

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COMMENT & RESPONSE

Comparison of Methods to Diagnose Sarcoidosis

To the Editor Dr von Bartheld and colleagues[1] performed a randomized clinical trial to compare endosonographic mediastinal lymph node sampling with conventional bronchoscopy (including performance of transbronchial lung biopsy [TBLB], bronchial biopsy, and bronchoalveolar lavage) in patients with stage I/II sarcoidosis and demonstrated the overall superior diagnostic yield of endosonography.

However, an important issue regarding the study protocol is the exclusion of conventional transbronchial needle aspiration (TBNA) as an adjunctive flexible bronchoscopic diagnostic modality in patients with sarcoidosis.

Conventional TBNA, which was not performed in the study by von Bartheld et al, has been demonstrated to be a safe, cost-effective, and efficacious diagnostic modality in sarcoidosis. The procedure adds to the diagnostic yield of TBLB; eg, the diagnostic yield of conventional TBNA alone in sarcoidosis is 62% but the yield increases to 83% when performed along with TBLB.[2] The yield of endosonography in the present study was 80%.

It is unclear why conventional TBNA was not included because a trained bronchoscopist can easily obtain nodal aspirates with this technique, especially from the subcarinal station, without associated risk of major complications like bleeding or pneumothorax. The authors stated that conventional TBNA was not performed because it is not widely practiced and the yield is inferior to endosonography.

However, the yield of conventional TBNA for large subcarinal lymph nodes is actually similar to that of endobronchial ultrasonography (EBUS)-guided TBNA.[3] This is especially important because the lymph node station most often sampled in the study was the subcarinal node.

Von Bartheld et al stated that TBLB is associated with a risk of bleeding and pneumothorax. If conventional TBNA is performed prior to TBLB and granulomas can be identified by an onsite cytopathologist, then even a TBLB can be avoided. In addition, facilities with endosonography are limited globally.

Therefore, it is possible that the difference in the reported diagnostic yield (53%) between the conventional bronchoscopy group and the endosonography group may have been much less if conventional TBNA had been incorporated as part of the flexible bronchoscopic sampling protocol.

In that case, the results of the study would have been a true reflection of the comparative differences between endosonography and flexible bronchoscopy in patients with sarcoidosis.

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To the Editor Dr von Bartheld and colleagues[1] reported that among patients with suspected stage I/II pulmonary sarcoidosis undergoing tissue confirmation, the use of endosonographic nodal aspiration compared with bronchoscopic biopsy resulted in greater diagnostic yield.

Even though this was the focus of their study, they also reported bronchoalveolar lavage (BAL) results to assess its utility in diagnosing sarcoidosis. As also reported previously,[2-5] the value of a BAL in diagnosing sarcoidosis, as measured by CD4/CD8 ratio analysis with a cutoff value of 3.5, was limited.

To date, subsequent investigations have found that the CD4/CD8 ratio may not be significantly increased in a substantial number of patients with sarcoidosis.[2,3] Almost 20% of patients with sarcoidosis demonstrated a decreased CD4/CD8 ratio and 20% had a normal ratio.[4,5]

Therefore, the diagnostic value of this ratio in sarcoidosis has been debated because of the high variability. The likeli-