Racial and Ethnic Variation in PSA Testing and Prostate Cancer Incidence Following the 2012 USPSTF Recommendation

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Abstract

Background: The 2012 US Preventive Services Task Force recommendation against routine prostate-specific antigen (PSA) testing led to a decrease in prostate cancer screening, but the heterogeneity of its impact by race and ethnicity remains unclear. **Methods:** The proportion of 40- to 74-year-old men who self-reported receiving a routine PSA test in the past year was estimated in the Behavioral Risk Factor Surveillance System (2012-2018). Odds ratios (ORs) of undergoing screening by race and ethnicity were estimated, adjusting for healthcare-related factors. Prostate cancer incidence rates and rate ratios (IRRs) by race and ethnicity were estimated using Surveillance, Epidemiology, and End Results registry data (2004-2017). **Results:** PSA testing frequencies were 32.3% (95% confidence interval [CI] = 31.7% to 32.8%) among non-Hispanic White (NHW), 30.3% (95% CI = 28.3% to 32.3%) among non-Hispanic Black (NHB), 21.8% (95% CI = 19.9% to 23.7%) among Hispanic, and 17.7% (95% CI = 14.1% to 21.3%) among Asian and Pacific Islander men in 2012. The absolute screening frequency declined by 9.5% from 2012 to 2018, with a larger decline among NHB (11.6%) than NHW men (9.3%). The relative annual decrease was greater among NHB (OR = 0.86, 95% CI = 0.84 to 0.88) than NHW men (OR = 0.89, 95% CI = 0.89 to 0.90; $P_{\text{heterogeneity}} = .005$), driven by a larger decline among NHB men ages 40-54 years. The NHB to NHW IRR for total prostate cancer increased from 1.73 (95% CI = 1.69 to 1.76) in 2011 to 1.87 (95% CI = 1.83 to 1.92) in 2012 and has remained elevated, driven by differences in localized tumor incidence. Metastatic disease incidence is rising across all racial and ethnic groups. **Conclusions:** The frequency of prostate cancer screening varies by race and ethnicity, and there was a modestly steeper decline in PSA testing among younger NHB men relative to NHW men since 2012. The NHB to NHW IRR for localized prostate cancer modestly increased following 2012.

Prostate cancer is the most common cancer among US men, accounting for 174 650 incident cases and 31 620 deaths in 2019 (1). There is substantial variability in prostate cancer incidence and mortality by race and ethnicity. Non-Hispanic Black (NHB) men have approximately 1.7-fold higher prostate cancer incidence relative to non-Hispanic White (NHW) men, whereas, in contrast, the prostate cancer incidence rate among non-Hispanic Asian and Pacific Islander (NHAPI) men is approximately one-half that of NHW men (2,3). Disparities in prostate cancer incidence and mortality may be explained by biological, social, environmental, and healthcare-related factors (4).

Widespread uptake in serum prostate-specific antigen (PSA)-based screening contributed to a 40% decrease in prostate

cancer mortality from the mid-1980s through 2000 (1). However, adoption of PSA testing led to a spike in prostate cancer incidence over this period, during which many otherwise indolent tumors were detected and received treatments associated with adverse effects (5). The US Preventive Services Task Force (USPSTF) maintained a recommendation of "insufficient evidence" through much of the 1990s and early 2000s, citing a lack of randomized trial evidence (6-8). Subsequently, initial reports of the Prostate, Lung, Colorectal, and Ovarian Cancer Screening Trial and the European Randomized Study of Screening for Prostate Cancer found no reduction and a modest reduction in prostate cancer mortality limited to certain study sites, respectively (9,10). Considering this new evidence, the

USPSTF issued a draft Grade D (discourage use) recommendation against PSA-based screening for prostate cancer in October 2011 followed by a final Grade D recommendation in May 2012 (11). In this recommendation, the USPSTF concluded that there was “modest certainty that the benefits for PSA-based screening for prostate cancer do not outweigh the harms.” With additional follow-up in the screening trials, the USPSTF updated its recommendation in 2018 to encourage shared decision making regarding PSA-based screening for men ages 55-69 years while maintaining its recommendation against PSA testing for men aged 70 years or older (12). The 2018 recommendation also gives special clinical considerations for Black men, given the higher prostate cancer risk in this population.

Following the 2012 recommendation, reports from national data sources such as the Behavioral Risk Factor Surveillance System (BRFSS) showed that absolute PSA testing rates decreased by 3%-10% across age groups (13-22). Incidence rates likewise fell, driven in part by decreases in the detection of localized cancers (13-17,23). PSA screening rates also vary by race and ethnicity, with NHW men most likely to undergo screening overall (24-26). It remains unclear the extent to which the 2012 USPSTF update may have differentially affected prostate cancer screening rates and incidence by race and ethnicity. We investigated potential heterogeneity of the impact of this revised recommendation by race and ethnicity using additional years of data from the BRFSS and incidence data from the Surveillance, Epidemiology, and End Results (SEER) Program.

Methods

Study Design

We used the BRFSS, a national cross-sectional survey, to assess trends in PSA testing by race and ethnicity from 2012 to 2018. Changes in total and stage-specific prostate cancer incidence were evaluated using registry data from the SEER Program from 2004 to 2017. This study was deemed exempt by the institutional review board of Dana-Farber Cancer Institute.

Behavioral Risk Factor Surveillance System

The BRFSS is a state-based network of telephone surveys about health behavior, healthcare, and health status conducted among the US noninstitutionalized adult population (27). The BRFSS is the largest nationwide survey to ascertain cancer screening trends in the United States, querying respondents about their history of prostate cancer screening every 2 years. Major alterations to the sampling scheme of the BRFSS in 2011 preclude direct comparison of data collected before and after the redesign. Accordingly, the immediate change in PSA testing frequency from 2010 to 2012 cannot be evaluated using this survey. We used data from the 2012, 2014, 2016, and 2018 surveys in which questions about prostate cancer screening were asked nationally.

Our analyses were limited to men aged 40-74 years without a history of prostate cancer. Since the mid-2000s, the USPSTF and other organizations that issue screening recommendations (American Cancer Society, American Urological Association) have not recommended general screening of men younger than the age of 40 years. The USPSTF has recommended against prostate cancer screening for men aged 75 years or older since 2008. In 2018, the USPSTF updated its recommendation to shared decision making for prostate cancer screening for men aged 55-69

years. Accordingly, we conducted secondary analyses among men aged 40-54 years and 55-69 years with no history of prostate cancer to examine trends within this age group considered most likely to benefit from screening. The sample size of men aged 70-74 years was too limited to yield precise estimates within this group.

A total of 1 864 090 respondents were identified in the 4 years of BRFSS data. Of this population, 1 071 365 were not male, 291 151 did not meet age criteria, 1390 had a history of prostate cancer, 1266 had an unknown history of prostate cancer, 54 874 had an unknown history of PSA testing, and 39 922 had received a PSA test for nonscreening or unknown reasons, leaving a total of 404 122 men in the subpopulation of interest.

Statistical Analyses in the BRFSS

The BRFSS was used to evaluate time trends in the proportion of screening-eligible men who received a routine PSA test in the past year across self-identified racial and ethnic groups. The proportion of men receiving a screening PSA test in the past 2 years was evaluated in secondary analyses. PSA testing frequencies were estimated using PROC SURVEYFREQ. Age and multivariable-adjusted logistic regression models were fit using PROC SURVEYLOGISTIC to estimate odds ratios (ORs) of undergoing screening PSA tests by race and ethnicity over time (survey year), accounting for age and factors related to health behavior and healthcare utilization. Subpopulation-specific odds ratios were estimated using DOMAIN statements. Heterogeneity of the survey year-PSA testing association by race and ethnicity was evaluated through a likelihood ratio test for the inclusion of interaction terms between survey year and the 4 racial and ethnic minority groups (using NHW men as a reference population). Age, health insurance status, education, income, employment, marital status, self-reported health status, body mass index, and smoking status were a priori identified as potential confounders. Self-reported health status and body mass index were not associated with PSA testing and were not included as covariates in final models. In accordance with the recommendation in the BRFSS codebook, sampling weights were divided by 4.

SEER Program

Prostate cancer incidence data from 2004 through 2017 were obtained from 21 population-based cancer registries through the SEER Program, which combined capture approximately one-third of the US population (28). As changes in cancer screening behavior are expected to presage a shift in the stage of cancer diagnosis, we examined incidence rates and incidence rate ratios (IRRs) by stage among racial and ethnic populations using the SEER summary stage. This staging variable categorizes tumors as localized, regional, or distant, and it has been collected in the SEER-21 data since 2004.

Statistical Analyses in the SEER Program

Prostate cancer incidence rates standardized to the 2000 US Census population were estimated among NHW, NHB, NHAPl, Non-Hispanic American Indian and Alaska Native (NHAIAN), and Hispanic men aged 40-74 years, excluding men of other or unknown race and ethnicity. The 95% confidence intervals (CIs) for incidence rates were calculated using the Tiwari method (29). IRRs were calculated comparing age-standardized

incidence rates among NHB, NHAPI, NHAIAN, and Hispanic men with those among NHW men. Trends in total and stage-specific incidence across racial and ethnic groups were evaluated using log-transformed joinpoint regression models, allowing a maximum of 3 joinpoints over the study period (30).

All statistical tests using BRFSS and SEER data were 2-sided, and *P* values less than .05 were considered statistically significant. Statistical analyses were performed using SAS version 9.4, SEER*Stat software version 8.3.6 and Joinpoint Trend Analysis Software version 4.8.0.1.

Results

A total of 404 122 men met the eligibility criteria in the BRFSS, of which 67.4% were NHW, 13.7% Hispanic, 10.6% NHB, 4.2% NHAPI, 1.0% NHAIAN, and 3.0% were of other or unknown race and ethnicity (Supplementary Table 1, available online). NHW men tended to be older than other racial and ethnic groups. The healthcare uninsured rate was highest among Hispanic, NHB, and NHAIAN men. Educational attainment and income were highest among NHW and NHAPI men, and men of these 2 racial and ethnic groups were more likely to be married. Employment was least common among NHB and NHAIAN men. The prevalence of current smokers was lowest among NHAPI and Hispanic men.

In the 2012 survey, 29.9% (95% CI = 29.4% to 30.4%) of men aged 40-74 years reported undergoing a screening PSA test in the past year (Figure 1, A). This proportion decreased over subsequent surveys to 20.4% (95% CI = 19.9% to 20.9%) in the 2018 survey (absolute difference from 2012: -9.5%). On adjustment for age, the odds of undergoing screening PSA testing decreased by 10% annually from 2012 onward (OR = 0.90, 95% CI = 0.89 to 0.91) and by 11% annually on adjustment for socioeconomic and healthcare-related factors (OR = 0.89, 95% CI = 0.88 to 0.89) (Table 1).

The frequency of PSA testing differed by race and ethnicity. The proportion screened was highest among NHW men in 2012 (32.3%, 95% CI = 31.7% to 32.8%), followed by NHB (30.3%, 95% CI = 28.3% to 32.3%), NHAIAN (25.1%, 95% CI = 20.3% to 29.9%), Hispanic (21.8%, 95% CI = 19.9% to 23.7%), and NHAPI (17.7%, 95% CI = 14.1% to 21.3%) men (Figure 1, B). Absolute decreases in testing frequency from 2012 to 2018 were 9.3% among NHW, 11.6% among NHB, 6.5% among NHAPI, 12.1% among NHAIAN, and 7.9% among Hispanic men. In the fully adjusted model, the annual decrease in the odds of undergoing PSA testing from 2012 onward was greater among NHB men (OR = 0.86, 95% CI = 0.84 to 0.88) than NHW men (OR = 0.89, 95% CI = 0.89 to 0.90) ($P_{\text{heterogeneity}} = .005$).

This difference is driven by a steeper decline in PSA testing among NHB men aged 40-54 years relative to their NHW counterparts (Table 1; Figure 1, C and D). PSA testing frequency decreased from 22.4% in the 2012 survey (95% CI = 19.4% to 25.0%) to 11.1% in the 2018 survey (95% CI = 9.4% to 12.8%) among NHB men compared with a decrease from 17.5% (95% CI = 16.8% to 18.3%) to 9.3% (95% CI = 8.6% to 10.0%) among NHW men. In multivariable-adjusted models in the 40- to 54-year-old group, NHB men experienced a relative 15% (OR = 0.85, 95% CI = 0.82 to 0.88) annual decrease in PSA testing while there was a 12% (OR = 0.88, 95% CI = 0.87 to 0.89) relative annual decrease among NHW men ($P_{\text{heterogeneity}} = .06$). However, there was no difference in the annual change in PSA testing frequency between NHB (OR = 0.88, 95% CI = 0.86 to 0.91) and NHW (OR = 0.89, 95% CI = 0.89 to 0.90) men aged 55-69 years ($P_{\text{heterogeneity}} = .55$) (Table 1;

Figure 1, E and F). When examining the other racial and ethnic minority populations among men aged 40-74 years, the annual change in the odds of undergoing PSA testing following 2012 did not differ between NHW and NHAPI ($P_{\text{heterogeneity}} = .72$), NHAIAN ($P_{\text{heterogeneity}} = .17$), or Hispanic ($P_{\text{heterogeneity}} = .45$) men, nor was there heterogeneity in time trends in screening within the 40- to 54-year-old or 55- to 69-year-old age groups. Findings were similar when evaluating the frequency of PSA testing in the past 2 years (Supplementary Figure 1 and Supplementary Table 2, available online).

Figure 2, A shows prostate cancer age-standardized incidence rates by race and ethnicity among men aged 40-74 years from 2004 through 2017. A decrease in total prostate cancer incidence was observed in NHW, NHB, NHAPI, and Hispanic men starting in 2011. Annual percent changes (APCs) were similar across racial and ethnic groups and ranged from -10.7% (95% CI = -25.6% to 7.2%) among NHAPI men to -8.5% (95% CI = -17.8% to 1.8%) among NHB men (Supplementary Table 3, available online). This decline in incidence continued through 2014 before stabilizing. The decrease in incidence during this period corresponds with an increase in the NHB to NHW IRR from 1.73 (95% CI = 1.69 to 1.76) in 2011 to 1.87 (95% CI = 1.83 to 1.92) in 2012 (Figure 2, B). In contrast, IRRs for NHAPI, NHAIAN, and Hispanic men (relative to NHW) remained stable over this period. These trends for total prostate cancer incidence are driven by decreases in the incidence of localized prostate cancer (Figure 2, C and D; Supplementary Table 3, available online). Patterns for regional prostate cancer remained similar over this period; however, incidence rates of distant disease have been increasing across all racial and ethnic groups since 2010. The increase has been slower among NHB men (APC = 2.7, 95% CI = 1.4 to 3.9) than NHW men (APC = 5.6, 95% CI = 4.6 to 6.7) such that the NHB to NHW IRR has declined from its peak in 2008 of 3.19 (95% CI = 2.85 to 3.57) to 2.40 (95% CI = 2.20 to 2.62) in 2017. Although Hispanic men have lower rates of localized and regional prostate cancer than NHW men, they have higher rates of distant prostate cancer. The Hispanic to NHW IRR for distant cancers has attenuated since 2011. IRRs for NHAPI and NHAIAN men have remained stable from 2011 onward.

Discussion

The BRFSS indicated that there is an approximately twofold variation in PSA-based prostate cancer screening frequency across racial and ethnic groups. Moreover, the 2012 USPSTF recommendation against PSA testing was associated with a continued decline in PSA testing since 2012 and modest growth of the difference in screening frequency between NHB and NHW men. The relative risk comparing NHB and NHW men for the incidence of localized prostate cancer modestly increased following 2012, though absolute incidence rates have fallen. Conversely, the NHB to NHW relative risk for distant prostate cancer may be declining, but absolute rates are increasing.

There was considerable variability in PSA testing frequency across racial and ethnic groups in the United States, which persisted over the study period. Despite multiple organizations identifying NHB men as a high-risk group, we observed that NHW men were more likely to receive PSA testing than NHB men, consistent with prior studies (26,31-33). However, the NHB-NHW difference in screening frequency is eliminated, or even reverses, on adjustment for socioeconomic and healthcare-related factors (26,31-34). The prevalence of men who reported undergoing PSA testing was the lowest among

Figure 1. Trends in prostate-specific antigen (PSA) testing in the total US population and by race and ethnicity from 2012 to 2018. The proportion of men who self-reported undergoing a screening PSA test in the prior year over time in the Behavioral Risk Factor Surveillance System (A) in the total population among men aged 40-74 years, (B) by race and ethnicity among men aged 40-74 years, (C) in the total population among men aged 40-54 years, (D) by race and ethnicity among men aged 40-54 years, (E) in the total population among men aged 55-69 years, and (F) by race and ethnicity among men aged 55-69 years. Dashed lines indicate the publication of draft prostate cancer screening recommendations by the US Preventive Services Task Force. NHAIAN = Non-Hispanic American Indian and Alaska Native; NHAPI = Non-Hispanic Asian and Pacific Islander; NHB = Non-Hispanic Black; NHW = Non-Hispanic White.

Table 1. Relative changes in PSA testing frequency in the total US population and by race and ethnicity from 2012 to 2018^a

Population	Age-adjusted OR (95% CI)	P _{heterogeneity}	Fully adjusted OR ^b (95% CI)	P _{heterogeneity}
Ages 40-74 y				
Annual change in total US population	0.90 (0.89 to 0.91)	—	0.89 (0.88 to 0.89)	—
Annual change in NHW	0.90 (0.90 to 0.91)	—	0.89 (0.89 to 0.90)	—
Annual change in NHB	0.88 (0.86 to 0.90)	.02	0.86 (0.84 to 0.88)	.005
Annual change in NHAPI	0.91 (0.86 to 0.96)	.78	0.90 (0.85 to 0.95)	.72
Annual change in NHAIAN	0.87 (0.81 to 0.93)	.32	0.85 (0.79 to 0.91)	.17
Annual change in Hispanic	0.90 (0.87 to 0.92)	.78	0.88 (0.86 to 0.91)	.45
Ages 40-54 y				
Annual change in total US population	0.89 (0.88 to 0.90)	—	0.87 (0.86 to 0.89)	—
Annual change in NHW	0.89 (0.88 to 0.91)	—	0.88 (0.87 to 0.89)	—
Annual change in NHB	0.87 (0.84 to 0.90)	.11	0.85 (0.82 to 0.88)	.06
Annual change in NHAPI	0.87 (0.80 to 0.94)	.48	0.85 (0.78 to 0.92)	.45
Annual change in NHAIAN	0.86 (0.76 to 0.97)	.53	0.84 (0.75 to 0.95)	.48
Annual change in Hispanic	0.91 (0.87 to 0.94)	.55	0.88 (0.85 to 0.92)	.78
Ages 55-69 y				
Annual change in total US population	0.90 (0.89 to 0.91)	—	0.89 (0.89 to 0.90)	—
Annual change in NHW	0.90 (0.89 to 0.91)	—	0.89 (0.89 to 0.90)	—
Annual change in NHB	0.89 (0.87 to 0.92)	.69	0.88 (0.86 to 0.91)	.55
Annual change in NHAPI	0.91 (0.84 to 0.99)	.84	0.90 (0.83 to 0.98)	.77
Annual change in NHAIAN	0.85 (0.79 to 0.92)	.14	0.83 (0.77 to 0.91)	.10
Annual change in Hispanic	0.91 (0.88 to 0.95)	.47	0.90 (0.86 to 0.94)	.77

^aThe relative changes are estimated using age- and fully adjusted OR (95% CI) for the annual change in the proportion of men undergoing screening PSA testing in the past year by race and ethnicity among men ages 40-74 years, 40-54 years, and 55-69 years in the Behavioral Risk Factor Surveillance System since the 2012 survey. CI = confidence interval; NHAIAN = Non-Hispanic American Indian and Alaska Native; NHAPI = Non-Hispanic Asian and Pacific Islander; NHB = Non-Hispanic Black; NHW = Non-Hispanic White; OR = odds ratio; PSA = prostate-specific antigen.

^bFully adjusted model is adjusted for age, race and ethnicity, insurance, income, education, employment, marital status, and smoking.

Hispanic, NHAIAN, and NHAPI men. Health-care access and utilization and socioeconomic factors contribute to the low frequency of PSA testing among Hispanic and NHAIAN men (31). Socioeconomic factors do not explain the lower frequency among NHAPI men, among whom differences in healthcare utilization, cultural attitudes towards cancer screening, and healthcare provider biases against screening due to the lower incidence within this group may contribute to the apparent lower screening rates (35,36).

A multitude of evidence has shown that the frequency of PSA-based prostate cancer screening immediately fell following the 2012 USPSTF recommendation (13,14). The magnitude of the impact differed across age groups and was geographically heterogeneous (21,22). The decrease in PSA testing was likely associated with the subsequent decrease in prostate cancer incidence, particularly of low-stage disease. Our findings suggest further heterogeneity of the immediate impact of the USPSTF recommendation by race and ethnicity among men aged 40-74 years. Importantly, screening frequency decreased across all racial and ethnic groups by a similar magnitude among men aged 55-69 years, the age group considered most likely to benefit from PSA-based screening. However, our findings showed that there was a steeper decline in screening among 40- to 54-year-old NHB men than NHW men, notable given the USPSTF's current suggestion that NHB men may benefit from initiating screening at younger ages (12).

SEER data indicated a modest amplification of the relative NHB to NHW IRR in the incidence of localized prostate cancers, though incidence rates have decreased in both groups since 2012. The apparent impact of reduced screening on prostate cancer incidence has associated benefits and harms. As a consequence of the decrease in screening, there has likely been a reduction in the overdiagnosis of prostate cancers, meaning fewer patients undergo treatment for tumors conferring low

risk of mortality. Importantly, however, absolute incidence rates of distant prostate cancer are increasing across all racial and ethnic groups. Joinpoint regression models show that the increase in metastatic disease began in 2010, suggesting that factors contributing to this trend predate the 2012 USPSTF recommendation. Nevertheless, the continued rise of metastatic disease incidence in recent years likely in part reflects reduced screening as well. The 3- to 10-year estimated lead time of PSA-based prostate cancer screening and the long natural history of prostate cancer means that the full impact of the USPSTF revised recommendation on the incidence of advanced prostate cancer and prostate cancer mortality may not yet have fully manifested (37). Moreover, the USPSTF issued an updated screening recommendation in 2018 (12). This update may also have influenced PSA testing frequency in the 2018 survey, although the data showed a continued decline in screening despite the updated recommendation.

This study is bolstered by its use of large survey and registry datasets generalizable to the US population to assess national trends in PSA testing and prostate cancer incidence. This analysis offers additional follow-up to assess longer term trends in prostate cancer screening in the BRFSS since the 2012 recommendation. Moreover, it leverages these resources to understand heterogeneity in screening frequency by race and ethnicity, particularly through examination of trends within racial and ethnic populations beyond NHW and NHB. Limitations of this work include that the BRFSS uses self-report of the receipt and indication for a PSA test. Accuracy in the self-report of PSA testing is lower than for other cancer-screening modalities (sensitivity = 0.71, specificity = 0.73 in the meta-analysis by Rauscher et al.) (38), with suggestive evidence that overreporting may be greater among NHB and Hispanic men (38-40). Accordingly, the lower specificity of self-reported PSA testing history in these subpopulations may attenuate observed racial

Figure 2. Prostate cancer incidence by race and ethnicity among men aged 40-74 years from 2004 to 2017 in the Surveillance, Epidemiology, and End Results-21 registries. (A) Age-standardized total prostate cancer incidence rates and joinpoint regression lines by race and ethnicity, (B) age-standardized total prostate cancer incidence rate ratios comparing racial and ethnic groups with NHW men, (C), age-standardized stage-specific prostate cancer incidence rates and joinpoint regression lines by race and ethnicity, (D) age-standardized stage-specific prostate cancer incidence rate ratios comparing racial and ethnic groups with NHW men. Dashed lines indicate the publication of draft prostate cancer screening recommendations by the US Preventive Services Task Force. NHAIAN = Non-Hispanic American Indian and Alaska Native; NHAPI = Non-Hispanic Asian and Pacific Islander; NHB = Non-Hispanic Black; NHW = Non-Hispanic White.

and ethnic differences in screening frequency. Additionally, we used broad categorizations of self-identified race and ethnicity, which do not capture the diversity within these groups that would influence health and healthcare-related behavior. The BRFSS is cross-sectional, and therefore longitudinal trends in PSA testing at an individual level cannot be assessed. Finally, this analysis did not account for additional secular trends in health care and cancer screening during this time; however, it is unclear that these effects would differentially affect PSA testing rates by race and ethnicity.

PSA testing frequency varies substantially across racial and ethnic populations in the United States. The decrease in PSA testing associated with the 2012 USPSTF recommendation against PSA-based screening was modestly steeper among NHB than NHW men. Additionally, the NHB to NHW rate ratio for total prostate cancer incidence increased following 2012, driven by changes in localized cancer incidence, whereas incidence of distant tumors is increasing across all racial and ethnic groups.

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Data Availability

The data underlying this article are publicly available from the Centers for Disease Control and Prevention and the National Cancer Institute Surveillance Epidemiology and End Results Program.

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