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Assessment of Prostate Cancer Treatment Among Black and White Patients During the COVID-19 Pandemic

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IMPORTANCE Early in the COVID-19 pandemic, racial/ethnic minority communities disproportionately experienced poor outcomes; however, the association of the pandemic with prostate cancer (PCa) care is unknown.

OBJECTIVE To assess the association between race and PCa care delivery for Black and White patients during the first wave of the COVID-19 pandemic.

DESIGN, SETTING, AND PARTICIPANTS This multicenter, regional, collaborative, retrospective cohort study compared prostatectomy rates between Black and White patients with untreated nonmetastatic PCa during the COVID-19 pandemic (269 patients from March 16 to May 15, 2020) and prior (378 patients from March 11 to May 10, 2019).

MAIN OUTCOMES AND MEASURES Prostatectomy rates.

RESULTS Of the 647 men with nonmetastatic PCa, 172 (26.6%) were non-Hispanic Black men, and 475 (73.4%) were non-Hispanic White men. Black men were significantly less likely to undergo prostatectomy during the pandemic compared with White patients (1 of 76 [1.3%] vs 50 of 193 [25.9%]; $P < .001$), despite similar COVID-19 risk factors, biopsy Gleason grade groups, and comparable prostatectomy rates prior to the pandemic (17 of 96 [17.7%] vs 54 of 282 [19.1%]; $P = .75$). Black men had higher median prostate-specific antigen levels prior to biopsy (8.8 ng/mL [interquartile range, 5.3-15.2 ng/mL] vs 7.2 ng/mL [interquartile range, 5.1-11.1 ng/mL]; $P = .04$). A linear combination of regression coefficients with an interaction term for year demonstrated an odds ratio for likelihood of surgery of 0.06 (95% CI, 0.01-0.35; $P = .002$) for Black patients and 1.41 (95% CI, 0.81-2.44; $P = .23$) for White patients during the pandemic compared with prior to the pandemic. Changes in surgical volume varied by site (from a 33% increase to complete shutdown), with sites that experienced the largest reduction in cancer surgery caring for a greater proportion of Black patients.

CONCLUSIONS AND RELEVANCE In this large multi-institutional regional collaborative cohort study, the odds of PCa surgery were lower among Black patients compared with White patients during the initial wave of the COVID-19 pandemic. Although localized PCa does not require immediate treatment, the lessons from this study suggest systemic inequities within health care and are likely applicable across medical specialties. Public health efforts are needed to fully recognize the unintended consequence of diversion of cancer resources to the COVID-19 pandemic to develop balanced mitigation strategies as viral rates continue to fluctuate.

Invited Commentary

Supplemental content

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COVID-19 has impacted every aspect of health care, with long-term ramifications yet to be fully appreciated. Early in the pandemic, there was a shift away from routine care to encourage better stewardship of resources as well as to prioritize patient and occupational safety.[1] These recommendations permeated all areas of health care, including oncology, with guidelines to defer nonemergency care during the spring of 2020.[2,3]

Although changes in practice were necessary to confront early surges and to balance patient safety, concerns grew that COVID-19 could inadvertently widen existing disparities, especially within the field of oncology, where cancer occurrence and outcomes vary substantially by race/ethnicity.[4-7] The virus initially impacted diverse urban centers, and reports from the first wave demonstrated that minority communities disproportionately experienced poor COVID-19 outcomes.[8,9]

Health care disparities are associated with the clinical outcomes of patients across the spectrum malignant neoplasms, with Black patients experiencing a 20% increased cancer-specific mortality compared with White patients.[5] Prostate cancer (PCa), the most common noncutaneous malignant neoplasm in men, affects 1 in 7 Black men, and Black men are more likely than White men to receive a diagnosis of advanced PCa and to die of the disease.[10] Recent studies have demonstrated that when care is equitable by either increasing access to care (ie, the Veterans Affairs Health System) or standardizing resources (inclusion into clinical trials), the differences in PCa mortality between Black and White men are greatly diminished.[4,11-13] This finding suggests that biological factors are not the main reason for these differences and that these differences may be the result of the complex interplay of social determinants and systemic inequities in our health care system.

It is widely accepted that PCa care can safely be deferred by 6 to 12 months without affecting outcomes for most patients.[2,14,15] Given its relatively indolent nature, PCa provides a valuable test case in understanding differential patterns in postponed care. During the initial months of the COVID-19 pandemic, both cancer screenings and care episodes decreased across the US.[16-18] However, the racial implications of these necessary shifts in health care use during the pandemic are unknown for patients with cancer.[19] To that end, we evaluated the association of COVID-19 with PCa surgery for Black and White patients within a multi-institutional cohort.

Key Points

Question Was the association of the COVID-19 pandemic with cancer surgery similar for Black and White patients with prostate cancer?

Findings In this multi-institutional cohort study of patients with untreated nonmetastatic prostate cancer during the initial COVID-19 lockdown, only 1% of Black men underwent prostatectomy, while 26% of White patients did. Prior to the pandemic, there was no difference in the rate of prostatectomy between the 2 races (18% of Black men and 19% of White men).

Meaning This study suggests that during the initial phase of the COVID-19 pandemic, hospital restrictions were unbalanced, and Black patients experienced a disproportionate lower rate of prostatectomies.

Methods

Cohort Design

We used the Pennsylvania Urologic Regional Collaborative (PURC) to evaluate men who received a diagnosis of nonmetastatic PCa (nmPCa). The PURC is a prospective collaborative of 11 urology practices in Pennsylvania and New Jersey, including more than 127 urologists. Practices cover a diverse scope, gathering data from private and academic institutions within urban and rural settings, including safety-net hospitals. Seven sites within the collaborative continuously contribute data on patients with PCa and those who undergo biopsy. Because data entry was delayed by the pandemic, we limited our search to practices that had complete data entered through June 1, 2020, excluding 2 sites. This study was approved by the institutional review board of the Fox Chase Cancer Center, and informed consent was waived as the research involved no more than minimal risk to the participants. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guidelines.

A cohort of men with untreated nmPCa was identified. We limited the cohort to men with complete information on prostate-specific antigen (PSA) level and clinical T stage. Because current guidelines recommend imaging only for patients with high-risk disease (PSA level ≥20 ng/mL [to convert to micrograms per liter, multiply by 1.0] and/or ≥cT3 stage and/or Gleason score >7), it was acceptable for patients with non–high-risk disease to be missing data on metastatic status.[20] Patients with high-risk disease who were missing data on M stage were excluded. Patients who were lost to follow-up during the study window were excluded. No patients died during the period of interest.

From this cohort, 2 groups were identified: those who received care during the initial pandemic and those who received care prior to the pandemic. The lockdown period was defined as March 16 through May 15, 2020. On March 13, a state of national emergency was declared, the American College of Surgeons released its recommendations for elective operations, and, in Pennsylvania, school closures were announced. Monday, March 16 was the first business day after these changes. The conclusion of the lockdown was defined as May 15, 2020, the date on which the reopening process began in Pennsylvania. We established a reference cohort from the prior year (Monday, March 11, 2019, through Friday, May 10, 2019), using the same 9-week period to account for seasonal variations.[18] We included men who had received a diagnosis of nmPCa within 1 year of the end of the study period and were untreated at the beginning of the study period. In addition, 4 sites (hospitals B, C, D, and E) had extended mature data collection during the reopening phase (9 weeks after the lockdown).

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Outcomes and Covariates

The primary outcome was the difference in surgical management of untreated nmPCa between Black and White patients during the lockdown. Race was self-identified by the patients. Other races and ethnicities were excluded to minimize heterogeneity. For covariates, we evaluated both patient-level and practice-level characteristics. Patient-level characteristics included age, obesity, history of cardiovascular disease (myocardial infarction or peripheral vascular disease), type 1 and 2 diabetes, and chronic pulmonary disease. Patients were further stratified by the number of risk factors for developing severe COVID-19 infection, as described by the Centers for Disease Control and Prevention.[21] Prostate cancer–specific variables included prebiopsy PSA level and biopsy Gleason grade group. Details of the patient's workup included rates of magnetic resonance imaging, location of biopsy (within the practice or outside), when care was established in relation to the study period (before or during the pandemic), and clinical site where care was delivered. Practice-level factors included the demographic characteristics of the specific sites and the change in number of surgical procedures.

Statistical Analysis

Descriptive statistics were used to compare Black and White patients with nmPCa. We used the Fisher exact test and the Pearson χ^2 test to compare categorical variables and Wilcoxon rank sum test to evaluate continuous covariates. The associations of surgical management with patient age, comorbidities, risk factors for severe COVID-19 infection, PCa characteristics, and practice considerations were analyzed using univariable and multivariable logistic regression, for both the lockdown and control cohorts. Multivariable analysis with clustering by practice site was used to model the association of race with the likelihood of surgery during the lockdown, adjusting for age and the presence of high-risk disease. To assess for the effect modification between the pandemic and race, we fit a multivariable logistic regression with an interaction term between year and race. The linear combination of regression coefficients was then calculated to estimate the odds ratio (OR) of prostatectomy for men with nmPCa in 3 comparisons: (1) Black men before vs during the pandemic, (2) White men before vs during the pandemic, and (3) Black vs White men during the pandemic. The effect modification models were adjusted for age and the presence of high-risk PCa. The total number of surgical procedures performed at each site during the lockdown and the reference period for all patients with PCa were compared graphically. Statistical analyses were performed in Stata, version 13 (StataCorp LLC). All *P* values were from 2-sided tests and results were deemed statistically significant at $P < .05$.

Results

We identified 269 patients within the COVID-19 cohort and 378 from prior to the pandemic (eFigure in the Supplement). **Table 1** shows a comparison of patient characteristics for those with nmPCa during the initial lockdown period. Black men were significantly less likely than White patients to undergo prostatectomy during the pandemic (1 of 76 Black patients [1.3%] vs 50 of 193 White patients [25.9%]; $P < .001$); however, before the pandemic, there was no difference in the rates of prostatectomy between the 2 races (17 of 96 Black patients [17.7%] vs 54 of 282 White patients [19.1%]; $P = .75$) (eTable 1 in the Supplement). After the lockdown, surgical rates were even, with no compensation for the preceding surgical reduction within the Black patient cohort (19 of 76 Black patients [25.0%] vs 54 of 193 White patients [28.0%]; $P = .62$) (Table 1). During the pandemic, the 2 groups did not differ with regard to the number of COVID-19 risk factors and comorbidities, biopsy Gleason grade group, or the presence of high-risk PCa. Black patients were also less likely than White patients to transfer care after their biopsy and to receive the entirety of their care at a single institution (63 of 76 White patients [82.9%] vs 88 of 193 Black patients [45.6%]; $P < .001$). Counterintuitively, despite lower rates of surgery, Black men had higher prebiopsy median PSA levels than White men (8.8 ng/mL [interquartile range, 5.3-15.2 ng/mL] vs 7.2 ng/mL [interquartile range, 5.1-11.1 ng/mL]; $P = .04$).

On univariable analysis, White men were more likely than Black men to undergo prostatectomy during the lockdown, whereas, at baseline, there was no significant difference in the odds of surgery between the 2 races (OR, 26.2 [95% CI, 3.6-193.6] [$P < .001$] during the lockdown vs OR, 1.1 [95% CI, 0.6-2.0] [$P = .76$] prior to the pandemic) (eTable 2 in the Supplement). The presence of high-risk PCa, increased cancer grade, and referral to the practice with a diagnosis of PCa were associated with increased likelihood of surgery in both study groups. On multivariable analysis adjusting for the presence of high-risk disease and age, White race remained significantly associated with receipt of surgical care during the lockdown period (OR, 30.48 [95% CI, 3.84-241.95]; $P = .001$) (**Table 2**).

To further assess the association of race with surgical management during the pandemic, we fitted an effect modification model with an interaction term between year and race, while adjusting for disease risk category and age. The OR was calculated from the linear combination of regression coefficients to compare the association of race before and during the pandemic. During the pandemic, Black men with nmPCa were 94% less likely to undergo surgery compared with Black patients prior to the pandemic (OR, 0.06 [95% CI, 0.01-0.35]; $P = .002$) and 97% less likely relative to White men during the lockdown (OR, 0.03 [95% CI, 0.004-0.25]; $P = .001$) (**Table 3**). On the other hand, the likelihood of surgery was not significantly changed for White patients during the pandemic (OR, 1.41 [95% CI, 0.81-2.44]; $P = .23$).

Compared with before the pandemic, Black men experienced a 90.9% lower rate of prostatectomies across sites (from 22 in 2019 to 2 in 2020), while White men experienced only a 17.4% lower rate of prostatectomies across sites (from 69 in 2019 to 57 in 2020) (**Figure**). The degree to which sites reduced rates of surgery varied substantially and ranged from a complete shutdown (100%) to a 33% increase in surgical procedures. Sites that cared for more Black patients were most affected by the lockdown. A total of 40.5% of patients (49 of 121)

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Table 1. Demographic and Clinical Characteristics for Patients With Untreated Nonmetastatic Prostate Cancer During the 2020 COVID-19 Pandemic

Characteristic	Patients, No. (%)		*P* value
	Black, non-Hispanic (n=76)	White, non-Hispanic (n=193)	
Age at presentation, y			
<60	29 (38.2)	47 (24.4)	.09
60-69	33 (43.4)	89 (46.1)	
70-79	13 (17.1)	51 (26.4)	
≥80	1 (1.3)	6 (3.1)	
COVID-19 severity risk factors			
No risk factors	12 (15.8)	21 (10.9)	.36
1 Risk factor	34 (44.7)	80 (41.5)	
≥2 Risk factors	30 (39.5)	92 (47.7)	
Obesity	29 (38.2)	89 (46.1)	.24
Cardiovascular disease	2 (2.6)	8 (4.1)	.55
Type 1 or 2 diabetes	13 (17.1)	23 (11.9)	.26
Chronic pulmonary disease	1 (1.3)	7 (3.6)	.32
High-risk prostate cancer	23 (30.3)	64 (33.2)	.65
PSA level prior to biopsy, median (IQR), ng/mL	8.8 (5.3-15.2)	7.2 (5.1-11.1)	.04
Clinical T stage			
I	61 (80.3)	154 (79.8)	.38
II	12 (15.8)	30 (15.5)	
III	2 (2.6)	9 (4.7)	
IV	1 (1.3)	0	
Biopsy Gleason grade group			
1	20 (26.3)	42 (21.8)	.59
2	26 (34.2)	57 (29.5)	
3	13 (17.1)	43 (22.3)	
4 or 5	17 (22.4)	51 (26.4)	
MRI during workup	31 (40.8)	136 (70.5)	<.001
Outside biopsy	13 (17.1)	105 (54.4)	<.001
Time of first encounter			
Prior to lockdown	58 (76.3)	116 (60.1)	.03
During the lockdown	15 (19.7)	54 (28.0)	
After the lockdown	3 (3.9)	23 (11.9)	
Prostatectomy during the lockdown	1 (1.3)	50 (25.9)	<.001
Prostatectomy during reopening[a]	19 (25.0)	54 (28.0)	.62
Practice site			
A	17 (22.4)	27 (14.0)	<.001
B	7 (9.2)	51 (26.4)	
C	12 (15.8)	70 (36.3)	
D	9 (11.8)	32 (16.6)	
E	31 (40.8)	13 (6.7)	

Abbreviations: IQR, interquartile range; MRI, magnetic resonance imaging; PSA, prostate-specific antigen.

SI conversion factor: to convert PSA to micrograms per liter, multiply by 1.0.

[a] Limited to sites with mature extended date collection.

at the top 2 affected practice sites (hospitals D and E) were Black; in comparison, 81.7% of patients (210 of 257) at sites less affected (hospitals A, B, and C) were White. Furthermore, all sites experienced a reduction in the volume of surgery for Black patients.

Discussion

In this report, we demonstrate an association between the COVID-19 pandemic and the management of PCa in Black patients within a large regional cohort. Prostatectomy or radiotherapy are considered the standard of care for patients with intermediate- or high-risk nmPCa.[20] The data show a 90.9% lower rate of prostatectomies among Black patients compared with a 17.4% lower rate of prostatectomies among White patients. Clinical parameters did not explain the disparity, with Black men having comparable PCa and COVID-19 severity risk factors. Black men were younger, making them an even higher priority for surgical management. During the early stages of the pandemic, surgical treatment of cancer was restricted so that hospitals could prioritize the needs of patients who

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Table 2. Adjusted Odds of Prostatectomy During the 2020 COVID-19 Lockdown[a]

Variable	Odds ratio (95% CI)	*P* value
Age at presentation, y		
<60	1 [Reference]	NA
60-69	0.96 (0.52-1.77)	.90
70-79	0.64 (0.25-1.62)	.35
≥80	NA	NA
Race		
Black, non-Hispanic	1 [Reference]	NA
White, non-Hispanic	30.48 (3.84-241.95)	.001
High-risk prostate cancer		
No	1 [Reference]	NA
Yes	3.76 (1.93-7.32)	<.001

Abbreviation: NA, not applicable.

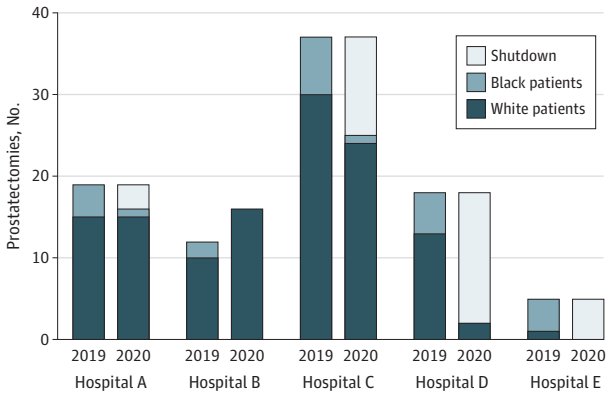
[a] Multivariable logistic regression with clustering for practice site.

Table 3. Association Between Race and Prostate Surgery With Effect Modification for During or Prior to the COVID-19 Pandemic[a]

Comparison	Odds ratio (95% CI)	*P* value
White men during the pandemic vs prior	1.41 (0.81-2.44)	.23
Black men during the pandemic vs prior	0.06 (0.01-0.35)	.002
Black men vs White men during the pandemic	0.03 (0.004-0.25)	.001

[a] Linear combination of regression coefficients with 95% CIs from multivariable logistic regression models for the odds ratio of prostatectomy for patients with nonmetastatic prostate cancer. Each row represents a comparison of the interaction between race and year. The model is adjusted for age, race, year, and the presence of high-risk disease features.

Figure. Association of the COVID-19 Lockdown With Prostatectomy Volume



Number of prostatectomies by race and year for each practice site. The shaded area represents the total number of decreased surgical procedures.

required emergency treatment vs routine cancer care.[14] Pandemic-related restrictions, however, were unequally enacted, with some institutions experiencing an increased surgical volume, while sites with a higher proportion of Black patients paused PCa surgical procedures altogether.

For decades, researchers have chronicled health disparities within oncology.[12] Recently, Dess et al[4] analyzed the association of race with PCa mortality by studying the association of social determinants with mortality across 3 large databases (the Surveillance, Epidemiology, and End Results Program [SEER], the Veterans Affairs Health System, and the Radiation Therapy Oncology Group [RTOG] cooperative group), all with varying baseline access to care. Within the SEER cohort, Black patients were 30% more likely to die of PCa; this mortality rate was reduced to 9% after adjusting for social determinants (educational level, insurance status, and other fators) and disease stage. However, in the Veterans Affairs Health System and RTOG groups, for which care is standardized, Black patients with PCa had improved relative survival. The authors concluded that unequal access to care and nonstandardized treatment approaches, not biology, resulted in racial disparities in mortality.

Similarly, our cohort included patients who had routine access to care, and prior to the pandemic, there was no racial difference in the rates of prostatectomy. Nonetheless, the effect modification clearly demonstrated that the association of race with rates of prostatectomy was strongly modulated by the context. Prior to the pandemic, the odds of prostatectomy were the same between Black and White patients with nmPCa. During the initial lockdown, Black patients experienced 94% lower odds of undergoing prostatectomy, while White patients experienced no changes in the likelihood of surgery. Although significant gains have been made to reduce racial disparities in health care, a stressor, such as a pandemic, shows the frail nature of these gains.[19] Furthermore, we would anticipate that these disparate findings would be further magnified for patients without established access to care.

Disparities in surgical treatment were not only associated with changes within individual practices but with systematic variations. In our cohort, institutions that cared for a greater proportion of Black patients experienced more severe reductions in PCa surgery, and disproportionately fewer Black men underwent extirpative treatment across the cohort. A likely factor was that 43% of the Black population in Pennsylvania reside within the city of Philadelphia, as opposed to only 6% of the state's total White population. Because Philadelphia had a higher rate of COVID-19 cases in the initial viral surge, the impact was felt to be greater among the Black men within our cohort. Furthermore, multiple studies have demonstrated that this association between race and care was amplified by preexisting inequalities in housing, employment, and insurance, which may have increased exposure to the virus and restricted subsequent treatment.[22,23]

Similar to PURC sites, smaller cohort studies in New York City show the differential association of the pandemic with institutional ability to provide oncologic services depending on the practice site. Escobar et al[24] reported on breast cancer experiences at 2 New York City public hospitals during March and April 2020, detailing the complete shutdown at Elmhurst Hospital in Queens, while care at Bellevue Hospital in Manhattan was able to continue at reduced capacity. A survey of gynecologic cancer care at 3 NewYork-Presbyterian Hospitals in different boroughs of New York City illustrated that location and COVID-19 status were associated with treatment modifications.[25]

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Furthermore, emerging evidence has shown that patients with new cancer episodes were most severely impacted by the pandemic—likely associated with reduced access to screening programs.[18] Many gains in closing the racial gap in cancer care are associated with early detection via screening programs.[6] The treatment gap reported in this study is for patients with known cancer diagnoses who are already integrated into medical systems. The longer-term implications of unbalanced health care restrictions not only to cancer treatments but also to screening will need to be studied in the future.

During the spring of 2020, many health care systems were forced to prioritize the immediate needs of patients with COVID-19 instead of the more long-term goals of patients with cancer. As a community, clinicians and patients were forced to make tough decisions regarding surgical treatment, and, universally, professional societies supported mitigation to "flatten the [COVID-19] curve."[2,3,26] Furthermore, initial reports from China demonstrated an increased risk of COVID-19 mortality among patients with cancer or undergoing surgery.[27,28] In balancing the risks and benefits to the patients, it was widely argued to avoid nonemergency care, particularly in regions of high COVID-19 prevalence. Specifically in the arena of PCa, multiple retrospective studies have shown no adverse effects from delay in treatment of up to 1 year.[14,15] These recommendations were not universally adopted but were individually modified to fit local landscapes.[29] Infection rates and death rates associated with COVID-19 disproportionately affected hospitals that served racial/ethnic minority communities more than hospitals that served predominantly White communities.[23,30] Although retrospective studies have bx; 1demonstrated that delayed surgical care of PCa is safe, the association of reduced access with outcomes among a marginalized population warrants further investigation.[4,7,14]

Limitations

This study has some limitations. Because this is a retrospective review of a regional cohort, our results might not be generalizable to the greater population. The outcomes of the pandemic have varied across regions, with Northeastern cities experiencing high rates of COVID-19 infection and death early in the pandemic. Although these are key sites in our analysis, our cohort spans a broad sample of facility types and regions, including less densely populated centers that were not as affected during the initial pandemic.[29] The contrasting characteristics between our sites provided a unique comparison of the association of the virus with cancer care. In addition, although our study was restricted to sites with continuous data entry, we were able to maintain a diverse array of practice types.

Furthermore, although we believe that the hospitals that reduced the number of surgical procedures were in regions that were overburdened with COVID-19 cases, the identities of the individual practices are blinded as per the agreement that forms the foundation of this quality initiative, preventing direct comparison. Future studies are needed to elucidate the cause of the unbalanced care and its association with hospital types and location. In addition, given the lower rates of surgical procedures among Black patients, there were few events associated with the observed standard error. However, this must be viewed within the context of the magnitude of the finding.

Last, the absence of evidence is not the evidence of absence. Nonclinical support staff at many institutions were furloughed during the spring, and tasks such as data entry may have been tabled while more pressing needs were addressed. Thus, we postponed data analysis until the initial crisis phase had passed in our region and normal operations had resumed. At the time of data analysis, the data set extended 6 months after the conclusion of the study period, with patient encounters reported at all included sites during the remainder of May and June to avoid confounding interpretation regarding the absence of data.

In addition, one could postulate that patients may have been diverted to outpatient therapeutics, such as radiotherapy, as a possible explanation for the decrease in surgical volume. Although PURC was designed to capture PCa care delivered by urologists (eg, biopsies, active surveillance, and prostatectomies), subsequent treatment after enrollment is captured, and no concurrent increase in radiotherapy was noted (eTable 3 in the Supplement). Furthermore, this pattern has been observed in the breast cancer literature with simultaneous reductions in both surgery and radiotherapy.[24]

Conclusions

This analysis demonstrated an assocation between the surgical management of patients with PCa during the COVID-19 pandemic and race. Given that it is generally accepted that PCa treatment can be delayed, on an institutional level, each site tailored its approach and balanced the needs of its own community. When viewed at the systems level, however, facilities with greater reductions in surgery cared for more patients from racial minority communities, which was associated with a decrease in treatment for Black patients with PCa. This trend provides a window into the intrinsic biases present within our health care system and is likely unfolding across medicine. The lessons from this study should help us to recognize and offset the implications of our pandemic-related decisions by prioritizing care in underserved communities lest we reverse decades of effort that worked to narrow racial/ethnic gaps in care. As COVID-19 cases continue to periodically surge, these findings should illuminate the systemic biases within well-intentioned guidelines and act to guide future policies.

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