Disparities in Access to Hospitals with Robotic Surgery for Patients with Prostate Cancer Undergoing Radical Prostatectomy

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Abbreviations and Acronyms

ORP = open radical prostatectomy

PC = prostate cancer

RARP = robotic assisted radical prostatectomy

RP = radical prostatectomy

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Purpose: We described population level trends in radical prostatectomy for patients with prostate cancer by hospitals with robotic surgery, and assessed whether socioeconomic disparities exist in access to such hospitals.

Materials and Methods: After merging the NIS (Nationwide Inpatient Sample) and the AHA (American Hospital Association) survey from 2006 to 2008, we identified 29,837 patients with prostate cancer who underwent radical prostatectomy. The primary outcome was treatment with radical prostatectomy at hospitals that have adopted robotic surgery. Multivariate logistic regression was used to identify patient and hospital characteristics associated with radical prostatectomy performed at hospitals with robotic surgery.

Results: Overall 20,424 (68.5%) patients were surgically treated with radical prostatectomy at hospitals with robotic surgery, while 9,413 (31.5%) underwent radical prostatectomy at hospitals without robotic surgery. There was a marked increase in radical prostatectomy at hospital adopters from 55.8% in 2006 and 70.7% in 2007 to 76.1% in 2008 ($p < 0.001$ for trend). After adjusting for patient and hospital features, lower odds of undergoing radical prostatectomy at hospitals with robotic surgery were seen in black patients (OR 0.81, $p < 0.001$) and Hispanic patients (OR 0.77, $p < 0.001$) vs white patients. Compared to having private health insurance, being primarily insured with Medicaid (OR 0.70, $p < 0.001$) was also associated with lower odds of being treated at hospitals with robotic surgery.

Conclusions: Although there was a rapid shift of patients who underwent radical prostatectomy to hospitals with robotic surgery from 2006 to 2008, black and Hispanic patients or those primarily insured by Medicaid were less likely to undergo radical prostatectomy at such hospitals.

Key Words: healthcare disparities, prostatic neoplasms, prostatectomy, robotics

PROSTATE cancer remains the most commonly diagnosed noncutaneous malignancy in men with an estimated 241,740 incident cases and 28,170 cancer related deaths in 2012.[1] Since PC disproportionately affects minority patient populations,[1–4] racial disparities are a well recognized health policy concern in regard to access to all forms of primary therapies and variations in the treatment of this prevalent malignancy. For example,

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black patients diagnosed with localized PC are less likely to receive radiation therapy or to undergo radical prostatectomy.[5,6] Other studies have also shown that black patients are less likely to undergo concomitant lymph node dissection during RP,[7] or less likely to be treated surgically by high volume urologists who have been shown to have better functional and oncologic outcomes.[8–10]

During the last decade the rapid adoption of health technology innovations such as robotic surgery and intensity modulated radiation therapy has led to significant changes in primary treatment alternatives for localized PC.[11] Since the Food and Drug Administration approval of robotic assisted radical prostatectomy in 2000, it has become the predominant surgical approach.[12,13] Commonly cited benefits of RARP compared to conventional open surgery include decreased blood loss and shorter length of stay. However, these relative benefits are largely based on observational studies without rigorous evaluation in randomized trials.[14–16] Despite the rapidly changing patterns of surgical care for PC in the United States, access to new health technology advances such as RARP in minority patient populations remains poorly described. More critical evaluation is needed to assess whether the adoption and dissemination of such new health technology has occurred equally across all patient populations. Therefore, we assessed for disparities in access to hospitals with robotic surgery for patients with PC surgically treated with ORP or RARP using a population based cohort.

MATERIALS AND METHODS

Study Population

Data for all patients who underwent RP for PC were generated by merging data from the NIS and the AHA Annual Survey Database. The NIS is maintained by the Healthcare Cost and Utilization Project and represents the largest all-payer inpatient database in the United States, capturing approximately 20% of all hospital admissions.[17] The AHA conducts an annual survey of a nationally representative sample of approximately 5,000 hospitals in the United States, in which data are collected regarding diagnostic and treatment facilities, structural features, costs and expenditures, and hospital personnel.[18] Among the variables assessed in the AHA survey is whether a hospital has acquired robotic surgery.

To identify our analytic cohort we used a methodology previously described from ICD-9 codes from hospital claims data in the NIS for 2006 to 2008.[16,19] Eligible patients were first identified by a primary diagnostic ICD-9 code for PC (185) and concomitant primary or secondary procedure codes for RP (60.5). Next we merged the NIS cohort with data from the AHA hospital survey for the corresponding years by unique AHA hospital identifier. Upon completion, using merged data from the NIS and the AHA hospital survey, this approach resulted in 29,837 patients who underwent RP for prostate cancer after the exclusion of 3 patients younger than age 40 years.

Patient and Hospital Variables and Primary Outcome

Demographic information included as independent covariates in our analysis was patient age, gender, race, primary health insurance, median zip code income by quartile and year of surgery. With a quarter of individuals missing a race designation, we created an indicator variable for missing race to include these cases. Secondary diagnostic codes were used to define an Elixhauser comorbidity index.[20] We also evaluated hospital teaching status, location and region as independent hospital level variables.

Statistical Analysis

The primary outcome of this study was treatment with ORP or RARP at hospitals with robotic surgery capabilities. Acquisition of robotic surgery by each hospital was ascertained from the AHA survey from 2006 to 2008. Descriptive statistics were used to summarize patient and hospital characteristics. Bivariate associations of patient and hospital variables with hospital adopters were tested by the Pearson chi-square test. Temporal trends by year of surgery for patients undergoing RP at hospital adopters and nonadopters were evaluated by the Wilcoxon rank sum test.

We then fit multivariate logistic regression models to assess whether patient and hospital variables were associated with the primary outcome. Post-estimations from the multivariate regression models were used to enumerate predicted probabilities of access to hospitals with robotic surgery for race and primary health insurance by year of surgery. A 2-sided $p \leq 0.05$ was used to determine statistical significance and Stata® MP version 11.0 was used to perform all statistical analyses.

RESULTS

From the NIS-AHA merged data we identified 29,837 patients who underwent RP for prostate cancer at 605 hospitals from 2006 to 2008. Overall the mean age in our analytic cohort was 60.94 years (SD 7.13). A total of 20,424 (68.5%) patients underwent RP at a robotic hospital compared to 9,413 (31.5%) who underwent RP at hospitals without robotic surgery. Patients treated at hospitals with robotic surgery were more likely to be younger, white and healthier, with a lower Elixhauser comorbidity index (table 1). More patients also underwent RP at hospitals with robotic surgery than at hospitals without robotic surgery if they were privately insured (67.6% vs 63.4%, $p < 0.001$) or resided in the highest zip code income areas (41.8% vs 31.5%, $p < 0.001$). Likewise, more patients underwent RP at hospitals with robotic surgery if they were treated at teaching hospitals (74.7 vs 47.4%, $p < 0.001$) as well as in hospitals located in urban regions (97.7% vs 90.1%, $p < 0.001$). Over time there was also a

Table 1. *Characteristics of patients undergoing RP*

	Absence of Robotic Surgery (%)	Presence of Robotic Surgery (%)
Age:		
Younger than 55	16.9	19.6
55–64	47.8	48.0
65–69	23.7	21.5
70–74	9.6	9.1
75 or Older	2.0	1.8
Race:		
White	55.4	62.2
Black	6.9	7.8
Hispanic	4.8	4.1
Other	3.0	3.7
Missing	29.9	22.2
Elixhauser comorbidity index:		
0	35.5	41.6
1	39.3	38.2
2	17.9	15.1
3 or Greater	7.2	5.1
Primary insurance:		
Private	63.4	67.6
Medicare	30.3	27.5
Medicaid	2.0	1.7
Other	4.3	3.2
Annual household income:		
1 (lowest quartile)	15.9	13.5
2	24.0	20.2
3	28.6	24.5
4 (highest)	31.5	41.8
Hospital teaching status:		
Nonteaching	52.6	25.2
Teaching	47.4	74.7
Hospital location:		
Rural	9.9	2.3
Urban	90.1	97.7
Hospital region:		
Northeast	17.2	30.2
Midwest	22.8	16.8
South	21.6	26.1
West	38.4	26.9
Yr of surgery:		
2006	40.0	23.3
2007	32.2	35.9
2008	27.8	40.8

All values p <0.001.

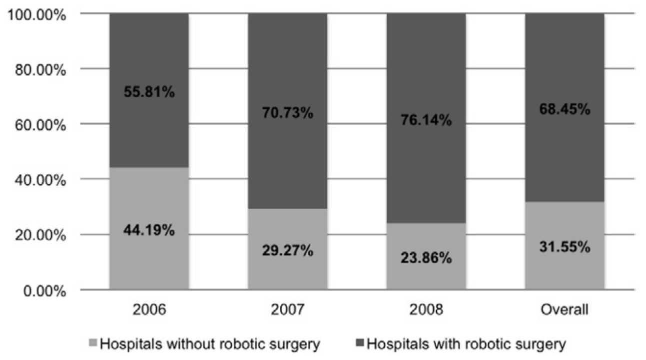


Figure 1. Proportion of patients who underwent RP at hospitals by absence or presence of robotic surgery.

marked increase in patients treated with RP at hospitals with robotic surgery from 55.8% in 2006 to 76.1% in 2008 (p <0.001 for trend, fig. 1). Furthermore, the average number of RPs at hospitals without robotic surgery was 26.1 (SD 30.7), which was significantly less than the average of 115.3 RPs (SD 96.2) at hospitals with robotic surgery (p <0.001).

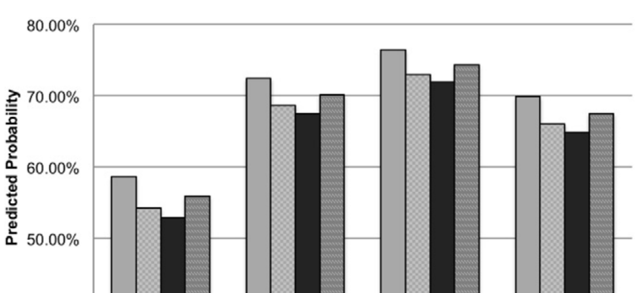
On multivariate analysis specific patient and hospital characteristics were significantly associated with patients diagnosed with PC undergoing RP at hospitals with robotic surgery (table 2). Although age was not associated with the surgical approach to RP, a higher Elixhauser comorbidity index correlated with a lower likelihood of undergoing RP at a hospital with robotic surgery, while patients who resided in zip codes with the highest median income were 28% more likely to be treated at hospitals with robotic surgery compared to those living in the lowest median income zip code (OR 1.28, <0.001). We also observed that teaching (OR 2.77, p <0.001) and

Table 2. *Adjusted odds ratios of features associated with patients undergoing RP at hospitals with presence of robotic surgery*

Feature (reference)	OR (95% CI)	p Value
Age (younger than 55):		
55–64	0.94 (0.87–1.01)	0.12
65–69	0.93 (0.83–1.03)	0.17
70–74	1.05 (0.93–1.20)	0.42
75 or Older	1.19 (0.96–1.48)	0.11
Race (white):		
Black	0.81 (0.73–0.91)	<0.001
Hispanic	0.77 (0.67–0.87)	<0.001
Other	0.88 (0.76–1.02)	0.10
Missing	0.84 (0.78–0.90)	<0.001
Elixhauser comorbidity index (0):		
1	0.84 (0.79–0.89)	<0.001
2	0.74 (0.69–0.80)	<0.001
3 or Greater	0.65 (0.58–0.73)	<0.001
Primary insurance (private):		
Medicare	1.03 (0.94–1.13)	0.51
Medicaid	0.70 (0.57–0.84)	<0.001
Other	0.71 (0.62–0.82)	<0.001
Annual household income quartile (1, lowest):		
2	1.08 (0.93–1.18)	1.06
3	0.96 (0.88–1.04)	0.37
4 (highest)	1.28 (1.17–1.39)	<0.001
Hospital teaching status (nonteaching):		
Teaching	2.77 (2.62–2.93)	<0.001
Hospital location (rural):		
Urban	3.36 (2.97–3.82)	<0.001
Hospital region (Northeast):		
Midwest	0.57 (0.53–0.63)	<0.001
South	1.06 (0.97–1.15)	0.16
West	0.55 (0.52–0.60)	<0.001
Yr of surgery (2006):		
2007	1.99 (1.87–2.13)	<0.001
2008	2.53 (2.36–3.82)	<0.001

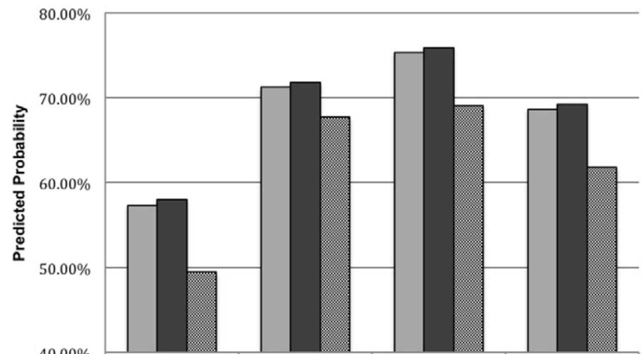
urban (OR 3.36, p <0.001) hospitals were strongly associated with undergoing RP at hospitals with robotic surgery compared to nonteaching and rural hospitals, respectively. More importantly, our analysis demonstrated that racial disparities and primary health insurance influenced whether patients had access to hospitals with robotic surgery. For example, patients who were black (OR 0.81, p = 0.01) or Hispanic (OR 0.77, p <0.001) were less likely to undergo RP at hospitals with robotic surgery compared to white patients after adjusting for patient and hospital features. In addition, patients primarily insured with Medicaid had a 30% lower likelihood of undergoing RP at a hospital with robotic surgery compared to those with private health insurance (OR 0.70, p <0.001).

Predicted probabilities enumerated from multivariate regression models were used to assess whether racial disparities and other socioeconomic determinants of performance of RP at hospitals with robotic surgery improved with time. Predicted probabilities of undergoing RP at hospitals with robotic surgery remained consistently higher for white patients than for nonwhite patients for each year and overall (p <0.001), although predicted probabilities increased each year across all races (fig. 2). Compared to patients with Medicare and private health insurance, the predicted probability of undergoing RP at hospitals with robotic surgery remained consistently lower among patients primarily insured with Medicaid over time (fig. 3). In our study hospital teaching status also yielded statistically significant differences in the predicted probabilities of undergoing RP at hospitals with robotic surgery, with teaching hospitals having predicted probabilities of 65.03% in 2006 to 81.85% in 2008, and nonteaching hospitals having predicted probabilities of only 41.34% in 2006 and 63.03% in 2008.



	2006	2007	2008	Overall
White	58.65%	72.41%	76.41%	69.86%
Black	54.24%	68.67%	73.00%	66.06%
Hispanic	52.83%	67.44%	71.87%	64.82%
Other	55.90%	70.10%	74.31%	67.52%

Figure 2. Predicted probability of access to hospitals with robotic surgery for race by year, adjusting for patient age, Elixhauser comorbidity index, primary health insurance and annual household income, and hospital teaching status, location and region.



	2006	2007	2008	Overall
Private	57.24%	71.20%	75.31%	68.62%
Medicare	57.93%	71.78%	75.83%	69.21%
Medicaid	49.44%	67.73%	69.00%	61.74%

Figure 3. Predicted probability of access to hospitals with robotic surgery for primary health insurance by year, adjusting for patient age, race, Elixhauser comorbidity index and annual household income, and hospital teaching status, location and region.

DISCUSSION

In this study we describe contemporary trends in RP by the presence of robotic surgery at the hospital level, and ascertain whether racial disparities and other socioeconomic determinants are associated with access to such hospitals using NIS-AHA merged population based data from 2006 to 2008. Our study reveals that more than a majority of patients with prostate cancer undergo RP at hospitals that have acquired robotic surgery and that this trend has been markedly increasing over time. This expected finding was previously reported in population based studies using data from the NIS and the state of Wisconsin, suggesting that hospital acquisition of robotic surgery resulted in significant increases in market share and hospital RP case volume as well as increased rates of RP in Wisconsin.[19,21] Makarov et al demonstrated that the acquisition of robotic surgery also increased the mean adjusted number of RPs at a hospital by approximately 30 cases a year compared to a decrease in that number of approximately 5 cases per year among nonadopting hospitals.[19] Neuner et al also reported a similar association of robot acquisition and greater market share with a higher RP volume using inpatient data from the state of Wisconsin.[21] Although the relationship of robotic surgery and market share of RP has been well described, our study is striking in that more than three-quarters of patients ended up undergoing RP at hospitals with a presence of robotic surgery by 2008. One inference is that hospitals may be facing market pressure to offer RARP to urologists and patients to remain competitive for RP cases.

Another finding of our study is that in the face of the rapid uptake of robotic surgery for RP in the United States,[11–13] racial disparities remain a persistent policy concern in the diffusion of RARP and in access to hospitals performing robotic surgery. Although clinical trials to test the relative benefits and harm of RARP and ORP are currently lacking, an increasing number of observational studies suggest that RARP offers decreased risks of surgical morbidity, complications, blood loss and associated need for blood transfusions compared to ORP.[14,15] For example, Trinh et al recently used the NIS from late 2008 through 2009, suggesting that RARP was associated with 14% and 66% lower odds of postoperative complications overall and with blood transfusions, respectively, compared to ORP.[16] If the existing evidence is sufficient to conclude that RARP is a superior operation for PC with better convalescence and lower morbidity, then our findings are concerning in that minority patients may be facing barriers to high quality hospitals with robotic surgery and better outcomes. Indeed, differences in survival as well as variation in primary and adjuvant treatments for black patients diagnosed with PC have been well documented.[2,4,6,7,22] In particular, recent studies using Surveillance, Epidemiology and End Results-Medicare data from 1995 to 2005 reported that black patients were associated with lower rates of active treatment, in particular with greater disparities for RP overall and access to high volume urological surgeons.[8,22]

This study also focused on the relationship of primary health insurance coverage and the performance of RP at hospital adopters of RARP. Our results illuminate the association of patients primarily insured by Medicaid and the lower rates of RP at such hospitals. In our study being insured with Medicaid represented one of the most reliable and strongest variables associated with lower rates of possible RARP. A plausible explanation for this finding may be the economics of robotic surgery, which requires a large capital investment for the initial purchase of the robot, and subsequent annual maintenance fees and equipment costs for each case.[23] While previous studies have suggested that the cost difference between RARP and ORP is small for Medicare beneficiaries,[11] the cost differential may, in fact, be larger for different types of health insurance coverage. Since Medicare and Medicaid are unlikely to reimburse for RARP at substantially higher rates than ORP, hospitals may be allowing for greater access to privately insured patients due to the greater reimbursement to cover the costs of robotic surgery.[24]

It is also important to acknowledge the limitations of this study. The NIS does not provide pathological information such as tumor stage, Gleason score or other key determinants of treatment such as patient and clinician preference. It is possible that these factors may partially explain the relationship between patient characteristics and choice of hospital for RP. However, several studies have consistently demonstrated that black patients more commonly present with more aggressive disease, have worse outcomes and, thus, are more likely to benefit from RP.[2–4,6] These data only capture information about treatment that occurs during hospitalization, namely RP. With the lack of level I evidence comparing RP to other forms of definitive therapy such as brachytherapy or intensity modulated radiation therapy,[25] minority patients or those primarily insured by Medicaid may have been appropriately treated with radiation therapy, thereby mitigating the disparities in access to primary therapy for PC. We acknowledge that there is no level I evidence to support long-term benefits or improved oncologic or functional outcomes for RARP compared to ORP. Finally, although our study describes socioeconomic disparities in access to hospitals with robotic surgery, these disparities may not exist for minorities or patients primarily insured by Medicaid who are surgically treated at such hospitals.

Nonetheless, our findings highlight the racial and socioeconomic disparities for patients with prostate cancer undergoing radical prostatectomy at hospitals with robotic surgery. Efforts to improve access for minority patients may decrease the variation in primary definitive therapy attributed to racial disparities. Another inference is the cost implication of the rapid adoption of these new treatments.[11,12,26] With greater attention placed on decreasing health care costs, changes to reimbursement by third-party payers may place greater constraints on hospitals in providing RARP to patients insured by Medicaid. For example, bundled payment models for the treatment of common malignancies have been proposed as a mechanism to help control health care costs.[27] It will be important to continue to examine how the higher costs attributable to RARP and policy changes to reimbursement may affect access to hospitals with robotic surgery for minority patients or for those primarily insured by Medicaid.[28–30] Lastly, although the relationship of the rapid uptake of robotic surgery and surgeon volume is an important issue, our results suggest that disparities in access to hospitals with robotic surgery may also limit access to high volume hospitals.

CONCLUSIONS

Although there has been a rapid shift of patients treated surgically with RP to hospitals that have adopted RARP, black or Hispanic patients or those primarily insured by Medicaid experience decreased access to such hospitals. More effective health care policies focusing on incentives to provide better access for minorities or for patients primarily insured by Medicaid may reduce disparities in access to high volume hospitals with robotic surgery.

REFERENCES

1. Siegel R, Ward E, Brawley O et al: Cancer statistics, 2011: the impact of eliminating socioeconomic and racial disparities on premature cancer deaths. CA Cancer J Clin 2011; **61:** 212.
2. Cohen JH, Schoenbach VJ, Kaufman JS et al: Racial differences in clinical progression among Medicare recipients after treatment for localized prostate cancer (United States). Cancer Causes Control 2006; **17:** 803.
3. Godley PA, Schenck AP, Amamoo MA et al: Racial differences in mortality among Medicare recipients after treatment for localized prostate cancer. J Natl Cancer Inst 2003; **95:** 1702.
4. Du XL, Fang S, Coker AL et al: Racial disparity and socioeconomic status in association with survival in older men with local/regional stage prostate carcinoma: findings from a large community-based cohort. Cancer 2006; **106:** 1276.
5. Shavers VL, Brown ML, Potosky AL et al: Race/ethnicity and the receipt of watchful waiting for the initial management of prostate cancer. J Gen Intern Med 2004; **19:** 146.
6. Underwood W 3rd, Jackson J, Wei JT et al: Racial treatment trends in localized/regional prostate carcinoma: 1992–1999. Cancer 2005; **103:** 538.
7. Hayn MH, Orom H, Shavers VL et al: Racial/ethnic differences in receipt of pelvic lymph node dissection among men with localized/regional prostate cancer. Cancer 2011; **117:** 4651.
8. Pollack CE, Bekelman JE, Epstein AJ et al: Racial disparities in changing to a high-volume urologist among men with localized prostate cancer. Med Care 2011; **49:** 999.
9. Begg CB, Riedel ER, Bach PB et al: Variations in morbidity after radical prostatectomy. N Engl J Med 2002; **346:** 1138.
10. Trinh QD, Sun M, Sammon J et al: Disparities in access to care at high-volume institutions for uro-oncologic procedures. Cancer 2012; **118:** 4421.
11. Nguyen PL, Gu X, Lipsitz SR et al: Cost implications of the rapid adoption of newer technologies for treating prostate cancer. J Clin Oncol 2011; **29:** 1517.
12. Kowalczyk KJ, Levy JM, Caplan CF et al: Temporal national trends of minimally invasive and retropubic radical prostatectomy outcomes from 2003 to 2007: results from the 100% Medicare sample. Eur Urol 2012; **61:** 803.
13. Hu JC, Gu X, Lipsitz SR et al: Comparative effectiveness of minimally invasive vs open radical prostatectomy. JAMA 2009; **302:** 1557.
14. Ficarra V, Novara G, Artibani W et al: Retropubic, laparoscopic, and robot-assisted radical prostatectomy: a systematic review and cumulative analysis of comparative studies. Eur Urol 2009; **55:** 1037.
15. Ficarra V, Novara G, Fracalanza S et al: A prospective, non-randomized trial comparing robot-assisted laparoscopic and retropubic radical prostatectomy in one European institution. BJU Int 2009; **104:** 534.
16. Trinh QD, Sammon J, Sun M et al: Perioperative outcomes of robot-assisted radical prostatectomy compared with open radical prostatectomy: results from the Nationwide Inpatient Sample. Eur Urol 2012; **61:** 679.
17. The Healthcare Cost and Utilization Project: Nationwide Inpatient Sample. Available at http://www.hcup-us.ahrq.gov/nisoverview.jsp. Accessed July 1, 2011.
18. The AHA Annual Survey, 2012. Available at http://www.ahadata.com/ahadata/html/AHASurvey.html. Accessed May 1, 2011.
19. Makarov DV, Yu JB, Desai RA et al: The association between diffusion of the surgical robot and radical prostatectomy rates. Med Care 2011; **49:** 333.
20. Elixhauser A, Steiner C, Harris DR et al: Comorbidity measures for use with administrative data. Med Care 1998; **36:** 8.
21. Neuner JM, See WA, Pezzin LE et al: The association of robotic surgical technology and hospital prostatectomy volumes: increasing market share through the adoption of technology. Cancer 2012; **118:** 371.
22. Pollack CE, Bekelman JE, Liao KJ et al: Hospital racial composition and the treatment of localized prostate cancer. Cancer 2011; **117:** 5569.
23. Barbash GI and Glied SA: New technology and health care costs–the case of robot-assisted surgery. N Engl J Med 2010; **363:** 701.
24. Lotan Y, Bolenz C, Gupta A et al: The effect of the approach to radical prostatectomy on the profitability of hospitals and surgeons. BJU Int 2010; **105:** 1531.
25. Wilt TJ, MacDonald R, Rutks I et al: Systematic review: comparative effectiveness and harms of treatments for clinically localized prostate cancer. Ann Intern Med 2008; **148:** 435.
26. Sheets NC, Goldin GH, Meyer AM et al: Intensity-modulated radiation therapy, proton therapy, or conformal radiation therapy and morbidity and disease control in localized prostate cancer. JAMA 2012; **307:** 1611.
27. Albright HW, Moreno M, Feeley TW et al: The implications of the 2010 Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act on cancer care delivery. Cancer 2011; **117:** 1564.
28. Lotan Y, Cadeddu JA and Gettman MT: The new economics of radical prostatectomy: cost comparison of open, laparoscopic and robot assisted techniques. J Urol 2004; **172:** 1431.
29. Lowrance WT, Eastham JA, Yee DS et al: Costs of medical care after open or minimally invasive prostate cancer surgery: a population-based analysis. Cancer 2012; **118:** 3079.
30. Scales CD Jr, Jones PJ, Eisenstein EL et al: Local cost structures and the economics of robot assisted radical prostatectomy. J Urol 2005; **174:** 2323.

EDITORIAL COMMENT

Kim et al describe the important problem of health care disparities in terms of access to robotic surgical technology. Presumptively some level of racial disparity in care exists in prostate cancer care as in many other health care services. The main challenge for the urological community is to understand the underlying causes of disparities, and then to create interventions that overcome these barriers so that we can deliver the best care for our patients, regard-

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less of race or socioeconomic status. How do communities or health systems reorganize care to address quality issues, including disparities?[1] Can payers (private or public) create programs that assure access to important medical care?[2] What outreach programs provide important men's health messages to underserved populations?[3] Health and health care disparities should be pressing issues for the urological community, with focused efforts to design and rigorously evaluate interventions as a central feature of our work.

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REFERENCES

1. Miller DC, Murtagh DS, Suh RS et al: Regional collaboration to improve radiographic staging practices among men with early stage prostate cancer. J Urol 2011; **186:** 844.
2. Bergman J, Logan S, Fink A et al: Caring for the uninsured with prostate cancer: a comparison of four policy alternatives in California. J Community Health, Epub ahead of print November 13, 2009.
3. Releford BJ, Frencher SK Jr, Yancey AK et al: Cardiovascular disease control through barbershops: design of a nationwide outreach program. J Natl Med Assoc 2010; **102:** 336.