Impact of COVID-19 pandemic on ambulatory urologic oncology surgeries

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QIAN Z, YE J, FRIEDLANDER DF, KOELKER M, LABBAN M, LANGBEIN B, CHEN CC-R, PRESTON MA, CLINTON T, MOSSANEN M, ABDULLAH F, LIPSITZ SR, KIBEL AS, TRINH Q-D, COLE AP. Impact of COVID-19 pandemic on ambulatory urologic oncology surgeries. *Can J Urol* 2023;30(6):11714-11723.

Introduction: *Robot-assisted laparoscopic prostatectomy (RALP) and transurethral resection of bladder tumor (TURBT) are two common surgeries for prostate and bladder cancer. We aim to assess the trends in the site of care for RALP and TURBT before and after the COVID outbreak.*

Materials and methods: *We identified adults who underwent RALP and TURBT within the California Healthcare Cost and Utilization Project State Inpatient Database and the State Ambulatory Surgery Database between 2018 and 2020. Multivariable analysis and spline analysis with a knot at COVID outbreak were performed to investigate the time trend and factors associated with ambulatory RALP and TURBT.*

Results: *Among 17,386 RALPs, 6,774 (39.0%) were ambulatory. Among 25,070 TURBTs, 21,573 (86.0%) were ambulatory. Pre-COVID, 33.5% of RALP and 85.3% and TURBT were ambulatory, which increased to 53.8% and 88.0% post-COVID (both p < 0.001). In multivariable model, RALP and TURBT performed after outbreak in March 2020 were more likely ambulatory (OR 2.31, p < 0.0001; OR 1.25, p < 0.0001). There was an overall increasing trend in use of ambulatory RALP both pre- and post-COVID, with no significant change of trend at the time of outbreak (p = 0.642). TURBT exhibited an increased shift towards ambulatory sites post-COVID (p < 0.0001).*

Conclusions: *We found a shift towards ambulatory RALP and TURBT following COVID outbreak. There was a large increase in ambulatory RALP post-COVID, but the trend of change was not significantly different pre- and post-COVID — possibly due to a pre-existing trend towards ambulatory RALP which predated the pandemic.*

Key Words: urologic oncology, ambulatory surgery, COVID, prostate cancer, robotic prostatectomy, bladder cancer, transurethral resection of bladder tumor

Introduction

With improved surgical technologies and recovery protocols and economic pressures to reduce costly hospitalizations, the length of stay following surgery has been steadily decreasing. This has culminated in efforts to transition some surgeries that are traditionally performed in inpatient settings towards fully ambulatory (outpatient) settings.[1-3] Prior studies utilizing large retrospective datasets demonstrated similar perioperative outcomes when various procedures across different surgical subspecialties that traditionally consisted of overnight stays, were performed in ambulatory settings.[4-7]

Accepted for publication November 2023

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The Coronavirus disease of 2019 (COVID) pandemic forced hospitals to cancel a large number of elective surgeries to preserve limited bed space to accommodate the surge of acutely ill COVID patients requiring hospitalization.[8-12] It is possible that this hastened the trend towards ambulatory RALP. To assess the impact of COVID on trends in ambulatory urologic cancer surgery, we chose to focus on two common urologic procedures: transurethral resection of bladder tumor (TURBT) and robot-assisted laparoscopic prostatectomy (RALP). In contrast to other oncology procedures such as radical cystectomy which are nearly always performed at inpatient hospitals and diagnostic cystoscopies which are typically performed in outpatient clinics, both RALP and TURBT can either be performed in inpatient or ambulatory settings. Most TURBTs are routinely performed in ambulatory settings, with particularly involved procedures occasionally requiring admission, whereas RALP is performed mainly in inpatient setting with multiple pilot studies suggesting the feasibility of transitioning to ambulatory setting.[13-15] We hypothesized that there would be a shift towards ambulatory site of care for both TURBT and RALP after the outbreak of pandemic and that the pandemic would accelerate the pre-existing trends for increased ambulatory settings of care.

Materials and methods

Data source

The Healthcare Cost and Utilization Project State Ambulatory and Services Database (SASD) and the State Inpatient Database (SID) of California between 2018 to 2020 were used to identify in the state of California who received TURBT or RALP at either inpatient settings or ambulatory settings. Data from California is chosen for only a limited number of states have SID and SASD data available during the peak of pandemic at the time of this project. Furthermore, California has a population similar to a medium sized European country and a GDP larger than France. It includes major urban centers as well as rural areas with low population densities and large populations of all major racial and ethnic groups. The year range 2018 to 2020 was chosen because we planned to include 2 years of data prior to COVID outbreak to capture a reliable baseline and only data up to the end of 2020 was available at the time of our study. The California Office of Statewide Health Planning and Development (OSHPD) collects data on ambulatory surgery encounters and inpatient stays for SASD and SID respectively. The SASD includes ambulatory surgery encounters defined as those performed on an outpatient basis in general operating rooms, ambulatory surgery rooms, endoscopy units, or cardiac catheterization laboratories. The SASD contains encounter-level data from both hospital-affiliated ambulatory facilities and independent non-hospital-affiliated ambulatory facilities. The SID includes admission and discharge records from the vast majority of inpatient hospitals in the state of interest. Detailed information of the extent of coverage by SID is available online at https://www.hcup-us.ahrq.gov/db/state/siddist/siddist_hospital.jsp.[16]

Study population

A combination of Current Procedure Terminology (CPT), International Classification of Diseases, Tenth Revision, Clinical modification codes (ICD-10-CM), and International Classification of Disease, Tenth Revision, Procedure Coding System (ICD-10-PCS) were used to identify all adult (age > 18) patients undergoing RALP for prostate cancer treatment and TURBT for bladder cancer treatment during the study period. RALP and TURBT were selected as they were believed to represent the most performed inpatient and outpatient urologic oncologic treatments which can at times be performed either as inpatient surgeries or as same-day discharges. Non-adult patients or patients who underwent RALP or TURBT without diagnosis of prostate or bladder cancer were excluded.

Main outcome measures

The primary outcome of interest was the proportion of index procedures that were performed in ambulatory settings as captured by the 2018 to 2020 California Healthcare Cost and Utilization Project SID and SASD databases. It was measured by calculating the fraction of index procedures recorded in SASD among all procedures performed during each study month. Index cases recorded in SASD with a length of stay of zero days were included in the study to ensure all ambulatory cases were truly ambulatory and did not require overnight observation (e.g. to exclude those procedures which were performed in ambulatory settings but ultimately required admission).

Main predictor variable

Our predictor variable is the month and year of each procedure. The exact date of procedure was not available in the dataset used in this project. March of 2020, the month when the first wave of COVID led to national emergency in the US, was used to separate index procedures as performed pre- or post-COVID.

Covariates
Baseline patient covariates included age, gender, race and ethnicity, type of insurance, county-level median household income quartiles, urban-rural residency status, Charlson Comorbidity index. These are categorized as in Table 1.

Statistical analyses
Baseline descriptive statistics were derived for each covariate, stratified by site of care, and compared via Pearson's Chi-Square or Wilcoxon Rank Sum Test for categorical and continuous variables respectively. Frequencies and proportions were reported for categorical variables. Medians (with interquartile range) reported for continuous variables.

To further analyze predictors of receiving index procedures in ambulatory versus inpatient settings, we performed a multivariable logistic regression adjusted for abovementioned covariates with the main outcome being the receipt of ambulatory RALP/TURBT. To analyze the trend of change in utilization of ambulatory setting for index procedures above, we constructed a cubic smoothing spline curve with cubic and quadratic time covariates with one knot at the first peak of COVID in March of 2020. This allowed us to address any pre-existing trends towards ambulatory

TABLE 1a. **Baseline demographic characteristics of robot-assisted laparoscopic prostatectomy cohort**

	Inpatient		**Ambulatory**		
	N or median N = 10612	**% or IQR**	**N or median N = 6774**	**% or IQR**	**p value**
Age	64.00	10	66	10	< 0.0001
Insurance type					< 0.0001
Private	5645	53.19%	3132	46.24%	
Medicare	4222	39.79%	3375	49.82%	
Medicaid	680	6.41%	240	3.54%	
Self-pay	65	0.61%	27	0.40%	
Race					< 0.0001
White	6150	57.95%	4180	61.71%	
Black	888	8.37%	587	8.67%	
Hispanic	2187	20.61%	1133	16.73%	
Other	1387	13.07%	874	12.90%	
Median household income					< 0.0001
Quartile 1 (wealthiest)	3482	32.81%	2204	32.54%	
Quartile 2	2871	27.05%	2085	30.78%	
Quartile 3	2330	21.96%	1505	22.22%	
Quartile 4 (poorest)	1929	18.18%	980	14.47%	
Urban-rural status					< 0.0001
Large metro area, >=1,000,000	8398	79.14%	4861	71.76%	
Small metro area, >=1,000,000	2046	19.28%	1716	25.33%	
Micropolitan*	95	0.90%	144	2.13%	
Rural	73	0.69%	53	0.78%	
Charlson Comorbidity index					0.661
1	6678	62.93%	4287	63.29%	
>=2	3934	37.07%	2487	36.71%	
COVID time					< 0.0001
Pre-COVID	8462	66.49%	4266	33.51%	
COVID	2150	46.16%	2508	53.84%	

*population 10,000 to 50,000

site of care for these two procedures and to compare this with the trends after COVID outbreak.[17]

Two-sided significance levels were set at $p < 0.05$. Statistical analyses were performed using SAS version 9.4 (SAS Institute Inc., Cary, NC, USA).

Results

Baseline demographics

A total of 17,378 men underwent RALP, of whom 6,774 (39.0%) received RALP in ambulatory setting. A total of 25,070 patients underwent TURBT, of whom 21,573 (86.0%) received TURBT in ambulatory setting. The unadjusted proportions of RALPs and TURBTs performed in ambulatory settings pre-COVID were 33.5% and 85.3%. Post-COVID, this increased to 53.8% of RALP and 88.0% of TURBT ($p < 0.001$ for both procedures). Differences in baseline characteristics of men treated in the two care settings (ambulatory and inpatient) are shown in Table 1a and Table 1b.

TABLE 1b. **Baseline demographic characteristics of transurethral resection of bladder tumor cohort**

	Inpatient		**Ambulatory**		
	N or median N = 3515	**% or IQR**	**N or median N = 21573**	**% or IQR**	**p value**
Age	77	17	74	15	< 0.0001
Gender					0.0064
Female	852	24.36%	4808	22.29%	
Male	2645	75.64%	16765	77.71%	
Payer					< 0.0001
Private	366	10.47%	4780	22.16%	
Medicare	2657	75.98%	15527	71.97%	
Medicaid	446	12.75%	1157	5.36%	
Self-pay	28	0.80%	109	0.51%	
Race					< 0.0001
White	2224	63.60%	15831	73.38%	
Black	229	6.55%	770	3.57%	
Hispanic	534	15.27%	2355	10.92%	
Other	510	14.58%	2617	12.13%	
Median household income					< 0.0001
Quartile 1 (wealthiest)	814	23.28%	6780	31.43%	
Quartile 2	916	26.19%	6384	29.59%	
Quartile 3	873	24.96%	4762	22.07%	
Quartile 4 (poorest)	894	25.56%	3647	16.91%	
Urban-rural status					0.0179
Large metro area, >=1,000,000	2629	75.18%	15928	73.83%	
Small metro area, >=1,000,000	750	21.45%	4934	22.87%	
Micropolitan*	73	2.09%	521	2.42%	
Rural	45	1.28%	190	0.88%	
Charlson Comorbidity index					< 0.0001
1	800	22.88%	10630	49.27%	
>=2	2697	77.12%	10943	50.73%	
COVID time					< 0.0001
Pre-COVID	2660	76.07%	15455	71.64%	
COVID	837	23.93%	6118	28.36%	

*population 10,000 to 50,000

Multivariable logistic regression

RALPs that took place post-COVID in the United States were over two times more likely to be performed in ambulatory settings (adjusted odds ratio (aOR) 2.31, 95% CI, 1.76-3.04, p < 0.0001). Other independent predictors of undergoing ambulatory RALP include Medicare insurance (aOR 1.54, 95% CI, 1.11-2.13, p = 0.010), residing in micropolitan area (aOR 2.90, 95% CI, 1.36-6.18, p = 0.0058). Age, insurance type, race/ethnicity, household income, and Charlson comorbidity index were not significantly associated with ambulatory site of care for RALP.

TURBTs that took place post-COVID in the United States were 25% more likely to be performed in ambulatory setting, (aOR 1.25, 95% CI, 1.13-1.38, p < 0.0001). Other independent predictors of ambulatory TURBT included age and female sex (aOR 0.88, 95% CI, 0.80-0.97, p = 0.012). Having Medicare, Medicaid, or self-pay insurance were all associated with lower likelihood of undergoing TURBT in ambulatory setting (aOR 0.68, 95% CI, 0.55-0.83, p = 0.0002; aOR 0.24, 95% CI, 0.17-0.35, p < 0.0001; aOR 0.29, 95% CI, 0.17-0.47, p < 0.0001) compared to private insurance. Being non-Hispanic black, Hispanic, or others in race/ethnicity also is associated with a lower utilization of ambulatory TURBT (aOR 0.60, 95% CI, 0.47-0.78, p = 0.0001; aOR 0.76, 95% CI, 0.66 -0.88, p = 0.0002; aOR 0.78, 95% CI, 0.66-0.93, p < 0.004) compared to their white counterparts. Patients with Charlson Comorbidity Index over or equal to 2 are significantly less likely to receive TURBT out of hospital (aOR 0.33, 95% CI, 0.30-0.36, p < 0.0001).

Spline curve analysis

Although the adjusted and unadjusted probability of receiving an ambulatory RALP was higher post-COVID, there was no statistically significant differences in the trend of change in ambulatory RALP utilization pre- and post- COVID (p = 0.642). The pre-COVID monthly adjusted probability for ambulatory RALP increased from 23.8% in January 2018 to 46.2% in March 2020 with an average per month change of 0.798%. The post-COVID monthly adjusted probability for ambulatory RALP similarly increased from 46.2% in March 2020 to 57.4% in December 2020 with an average per month change of 1.81%. The p value comparing these trends of change was 0.642.

In contrast, for TURBTs, adjusted and unadjusted probability of receiving an ambulatory procedure was higher post-COVID, and there was also a significant increase in the trend of change in ambulatory TURBT utilization following the initial surge of COVID (p < 0.0001). The monthly adjusted probability for pre-COVID ambulatory TURBT went from 87.7% in January 2018 to 87.5% in March 2020 with an average per month change of 0.102%. The post-COVID monthly adjusted probability increased from 87.5% in March 2020 to 93.1% in December 2020 with an average per month change of 0.585%. The p value comparing these trends is < 0.0001, indicating a significant change in trends pre- and post-COVID.

Discussion

Using state administrative data, we analyzed the utilization of ambulatory RALP and TURBT pre- and post-COVID. We found that both the adjusted and unadjusted proportion of ambulatory RALP and TURBT were significantly higher post-COVID. Spline analysis indicated an overall increase in ambulatory RALP which did not accelerate significantly post-COVID. In contrast, the time trend of ambulatory TURBT showed a more pronounced shift towards ambulatory surgery post-COVID. To our knowledge, this is the first study to analyze the change in utilization of ambulatory surgery during COVID era.

The observed rise in ambulatory RALP and TURBT procedures may be attributed not only to the necessity of conserving hospital bed space during the initial COVID-19 surge but also to staffing shortages within healthcare systems.[10,11] Many facilities, despite having available beds, lack the necessary nursing staff to operate them, further incentivizing shifts of suitable surgeries to ambulatory setting. The case is especially evident in TURBT, a procedure with a stable high ambulatory utilization rate in the past as evident by its flat spline curve pre-COVID, Figure 1. The significant trend of shift towards ambulatory TURBT is visualized in the uprising curve post-COVID, Figure 2. In the case of RALP, the almost doubling in proportion of ambulatory surgeries during our study period highlighted a large increase in the overall popularization of ambulatory RALP. Existing literature supporting the efficacy of ambulatory RALP prior to the pandemic likely contributed to the pre-COVID trend of growing numbers of ambulatory RALP.[13-15] A positive effect from COVID as observed in the case of TURBT likely also contributed in the case of RALP, but because there was a pre-existing upward trend in ambulatory RALP and a comparatively smaller number of cases, there was not a significant change in rate of increase post COVID.

Past literature on ambulatory RALP consisted of only institutional-level case series focusing on clinical outcomes. Numerous studies have shown similar perioperative outcomes to inpatient RALP

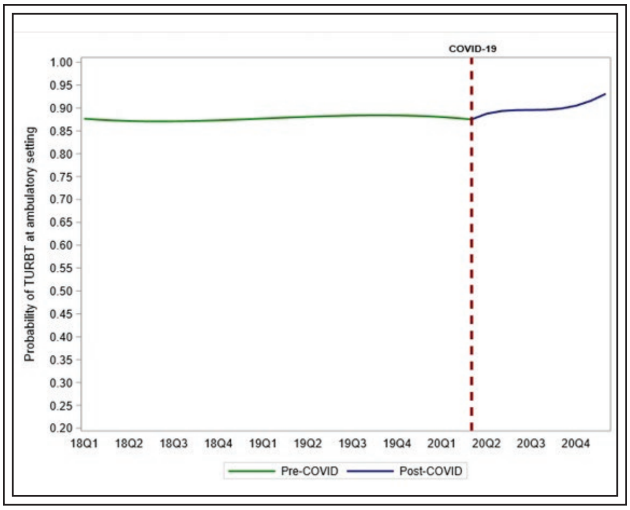

Figure 1. Cubic-smoothing spline curve with cubic and quadratic time covariates around first peak of COVID in the United States for ambulatory robot-assisted laparoscopic prostatectomy.

with overnight hospital stay.[13-15,18-26] Most reported complications were low Clavien-Dindo grade in nature with urinary tract infection and ileus being most common.[14,15,21,23,26] The largest among these studies included 358 patients from 6 institutions in France which included a spectrum of cancer stages, transperitoneal and extraperitoneal approaches, and pelvic lymphadenectomy or nerve preservation.[15] Their results are comparable to RALPs that included a traditional overnight stay. Ambulatory RALP was also found to be overall more cost-effective, as inferred from the short-term data on readmission and complication rates from individual case series.[13,14] With ambulatory RALP gaining increasing popularity as shown in our study, additional population-level research is needed to elucidate its financial and clinical outcomes .

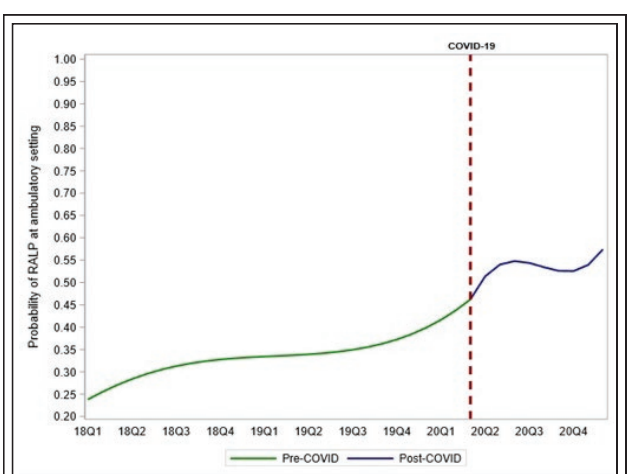

Figure 2. Cubic-smoothing spline curve with cubic and quadratic time covariates around first peak of COVID in the United States for ambulatory transurethral resection of bladder tumor.

Several barriers to ambulatory RALP have been highlighted by past literature. Dobbs et al surveyed patients who underwent RALP and found two thirds of these patients did not feel ready for same-day discharge.[27] They found that poorly controlled surgical pain and discomfort from newly inserted foley catheter being the two most common concerns.[27] Education and preparing patients for what to expect after surgery as well as devising pre-habilitation and enhanced recovery protocols may help overcome these barriers. Another potential barrier is postoperative nausea and vomiting, which could occur in up to 33% in RALP potentially due to prolonged steep Trendelenburg positioning and laparoscopic technique.[28,29] From a logistical standpoint, ambulatory RALPs started later in the day may pressure surgeons to operate hastily to allow a reasonable time for discharge after recovery from anesthesia when post-anesthesia care staff are still available and transportation could be arranged with patient and family members. The overall utilization of ambulatory RALP reached over 50% towards the end of our study period, Table 2a. Where the equilibrium point between ambulatory and inpatient RALP remains to be defined and can be limited by the abovementioned issues.

While not our primary findings, we noted lower odds of ambulatory TURBT for patients with Medicaid or self-pay status, Table 2b. This may reflect underlying socioeconomic challenges that complicate access to same-day surgical care, such as reliable transportation and sufficient support at home. Such challenges could also coincide with a higher likelihood of these individuals having more advanced diseases or comorbidities, which might necessitate more complex, higher-risk TURBTs and consequently inpatient care. On the other hand, men residing in micropolitan areas may benefit from a closer proximity to ambulatory surgical centers compared to those in rural or metropolitan regions, potentially explaining the increased odds for ambulatory RALP observed. However, this relationship is speculative and highlights a gap in our understanding that warrants further investigation.

The findings of this work must be interpreted within the limitations of our study design and data source. Firstly, although California represents a large

TABLE 2a. **Multivariable logistic regression analysis for receiving robot-assisted laparoscopic prostatectomy (RALP) in ambulatory setting**

		Odds ratio	95% CI	p value
Age		0.9922	0.9779, 1.0069	0.2951
Insurance type				
Private	ref			
Medicare		1.5367	1.1069, 2.1334	0.0103
Medicaid		0.7022	0.3255, 1.5145	0.3673
Self-pay		0.8362	0.4336, 1.6126	0.5935
Race				
White	ref			
Black		1.1828	0.8984, 1.5571	0.2315
Hispanic		0.8712	0.5480, 1.3850	0.56
Other		0.9924	0.7972, 1.2354	0.9456
Median household income				
Quartile 1 (wealthiest)	ref			
Quartile 2		1.0836	0.8674, 1.3537	0.4794
Quartile 3		0.9596	0.7192, 1.2804	0.7792
Quartile 4 (poorest)		0.7482	0.5185, 1.0793	0.1207
Urban-rural status				
Large metro area, >=1,000,000	ref			
Small metro area, >=1,000,000		1.4642	0.8894, 2.4104	0.1338
Micropolitan*		2.9013	1.3622, 6.1794	0.0058
Rural		1.3984	0.7249, 2.6977	0.3172
Charlson Comorbidity index				
1	ref			
>=2		0.9738	0.8679, 1.0927	0.6516
COVID time				
Pre-COVID	ref			
COVID		2.3142	1.7615, 3.0404	< 0.0001

*population 10,000 to 50,000

and diverse population, our analysis is based on state-level data captured by the California OSHPD. Our study included two arguably most performed urological oncological surgeries, which may not be generalizable to a large spectrum of other surgeries performed in urology. Since 2008, there has been a decline in the number of nonhospital-owned facilities reporting to OSHPD due to the result of the Capen vs. Shewry decision in 2007. The ruling exempted doctor-owned ambulatory surgery clinics from the need to obtain facility license from the California Department of Health. As reporting to OSHPD is tied to licensing, the ruling led to reduced capture of ambulatory surgeries from these unlicensed private surgery clinics within SASD and potentially resulting in an underestimation of ambulatory procedures performed. Although this could reduce the capture of ambulatory surgeries, the 2007 ruling predates our study period by over a decade and therefore should not have a disproportionate effect pre- and post-COVID.[30] Our analysis focused on characterizing the overall trend of index procedures that were performed in ambulatory settings. The design and data source of this study precluded us from studying the short- and long- term clinical and economic outcomes of their increasing ambulatory utilization. It remains to be seen if the observed increase in ambulatory urologic oncology procedures would produce comparable outcomes,

TABLE 2b. **Multivariable logistic regression analysis for receiving transurethral resection of bladder tumor (TURBT) in ambulatory setting**

		Odds ratio	95% CI	p value
Age		0.9843	0.9776, 0.9911	< 0.0001
Gender				
Male	ref			
Female		0.8847	0.8039, 0.9735	0.0121
Payer				
Private	ref			
Medicare		0.6757	0.5502, 0.8297	0.0002
Medicaid		0.2412	0.1666, 0.3491	< 0.0001
Self-pay		0.2857	0.1738, 0.4697	< 0.0001
Race				
White	ref			
Black		0.6046	0.4690, 0.7795	0.0001
Hispanic		0.759	0.6567, 0.8773	0.0002
Other		0.7776	0.6553, 0.9228	0.004
Median household income				
Quartile 1 (wealthiest)	ref			
Quartile 2		0.85	0.7328, 0.9858	0.0317
Quartile 3		0.6858	0.5700, 0.8251	< 0.0001
Quartile 4 (poorest)		0.5485	0.4411, 0.6821	< 0.0001
Urban-rural status				
Large metro area, >=1,000,000	ref			
Small metro area, >=1,000,000		1.134	0.9233, 1.3926	0.2305
Micropolitan*		1.3469	0.9621, 1.8855	0.0828
Rural		0.7368	0.4592, 1.1824	0.2056
Charlson Comorbidity index				
1	ref			
>=2		0.3275	0.2950, 0.3626	< 0.0001
COVID time				
Pre-COVID	ref			
COVID		1.2482	1.1325,1.3758	< 0.0001

*population 10,000 to 50,000

or if it turned out to be a compromise to the limited resources during COVID pandemic which ultimately harmed the quality of care. Our study captured only the index procedures performed during the early phase of COVID up to the end of 2020 and likely did not capture the full picture after the second peak of COVID and its ongoing effects as the most updated data at the time of our study ended in 2020.

The database used in this study did not provide information about the extent, staging and risk groups of prostate or bladder cancer. It is possible that patients who underwent RALP during the peak of COVID were those with more advanced diseases, and how this affects the likelihood of ambulatory RALP is uncertain: on the one hand these men may have required an extended pelvic lymph node dissection raising the likelihood of overnight monitoring. At the same time, it is possible that they may have received a non-nerve sparing procedure which could therefore have allowed for greater hemostasis and more surgeon confidence in favor of same day discharge. Our database also did not include the surgical approach or type of robotic assistance (single- vs. multi-port) that took place at different sites of care. Lastly, we derived ambulatory RALP from the SASD while including patients with only LOS > 0 (day of discharge = day of admission) and excluding patients from SASD with LOS > 0 (day of discharge > day of admission). As reported by the administrators of HCUP, patients who received surgery and discharged on postoperative day 1 should be coded with LOS = 1. It is possible that some of these patients with overnight stay could have been miscoded as LOS = 0 if this was a < 24 hour stay—however we expect this source of bias to be small and similar both pre- and post-COVID, therefore not significantly affecting our analysis of the trend of change around COVID outbreak. Our study's database, encompassing the SID and SASD, does not capture readmission rates, which is a notable gap given its relevance to postoperative outcomes. With improvements in COVID treatment, popularization of COVID vaccination, development of innovative hospital, and national policies to cope with the effect of COVID, further studies with more granular data would be needed to understand the full picture of the change in site of care of surgeries during the COVID era.

Conclusion

The COVID pandemic led to an unprecedented stress on the healthcare system and forced numerous adaptations in cancer care. Against a background trend for decreasing length of stay and shifts towards ambulatory approaches, the initial time period after COVIDs saw large increases in two common urological oncology procedures. The magnitude of this effect varied between surgeries and must be interpreted with care given the complex clinical, economic and health systems factors driving shifts to ambulatory care. These predate the pandemic and are likely to continue well beyond it.

Disclosures

QDT reports personal fees from Astellas, Bayer, and Janssen, outside the submitted work. QDT reports research funding from the American Cancer Society, the Defense Health Agency, and Pfizer Global Medical Grants. APC reports research funding from the American Cancer Society and Prostate Cancer Foundation (23YOUN25), by the Bruce A Beal and Robert L Beal surgical fellowship of the BWH Department of Surgery and a Physician Research Award from the Department of Defense Congressionally Directed Research Program (#PC220342). ☐

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