

Table 1. Patient and tumor characteristics by type of surgical therapy

	Total	LRN	ORN	p*
	n	n (%)	n (%)	
Overall	10,917	2188 (20)	8729 (80)	
PATIENT CHARACTERISTICS				
Age (years)				0.129 ⁺
65-69	2806	570 (20)	2236 (80)	
70-74	3109	556 (18)	2553 (82)	
75-79	2766	608 (22)	2158 (78)	
80-84	1614	312 (14)	1302 (86)	
>84	622	142 (23)	480 (77)	
Race/ethnicity				<0.001
Caucasian	9014	1850 (20)	7164 (80)	
African-American	796	159 (20)	637 (80)	
Hispanic	691	85 (12)	606 (88)	
Other	416	94 (23)	322 (77)	
Gender				0.006
Male	6264	1198 (19)	5066 (81)	
Female	4653	990 (21)	3663 (79)	
Married				0.227
Yes	6823	1343 (20)	5480 (80)	
No	4094	845 (21)	3249 (79)	
Socioeconomic status (tertiles)^a				<0.001 ⁺
High	3725	879 (24)	2846 (76)	
Intermediate	3643	668 (18)	2975 (82)	
Low	3535	641 (18)	2894 (82)	
Charlson comorbidity index^b				0.131 ⁺
0	6252	1240 (20)	5012 (80)	
1	3598	537 (15)	3061 (85)	
≥2	1710	366 (21)	1344 (79)	
TUMOR CHARACTERISTICS				
Tumor size^c				<0.001 ⁺
≤ 4 cm	4099	1001 (24)	3098 (76)	
4-7 cm	3914	840 (21)	3074 (78)	
> 7 cm	2645	314 (12)	2331 (88)	
Tumor histology				<0.001
Clear cell	9352	1772 (19)	7580 (81)	
Papillary	681	211 (31)	470 (69)	
Chromophobe	310	110 (35)	200 (65)	
Other	564	95 (17)	479 (83)	
Tumor grade^d				0.558
Well-differentiated	1372	300 (22)	1072 (78)	
Moderately-differentiated	3924	846 (22)	3078 (78)	
Poorly-differentiated	1827	412 (23)	1415 (77)	
Undifferentiated	448	82 (18)	366 (82)	

Tumor laterality^e				0.167
Left	5412	1114 (21)	4298 (79)	
Right	5501	1074 (19)	4427 (81)	

*p-value for association between patient or tumor characteristics and type of surgical therapy; +Mantel-Haenszel Chi-Square test used for ordinal data; a - data missing in 14 cases; b - data missing in 349 cases; c - data missing in 259 cases; d - data missing in 3346 cases; e - data missing in 4 cases

Table 2. Surgeon and practice environment characteristics by type of surgical therapy

	Total	LRN	ORN	p*
	n	n (%)	n (%)	
Surgeon age^a				<0.001 ⁺
30-39	2194	791 (36)	1403 (64)	
40-49	3569	754 (21)	2815 (79)	
50-59	3265	430 (13)	2835 (87)	
≥60	1434	155 (11)	1279 (89)	
Surgeon gender^a				0.730
Male	10246	2084 (20)	8162 (80)	
Female	216	46 (21)	170 (79)	
Surgeon specialty				<0.001
Urology	10111	2082 (21)	8029 (79)	
Other surgery	254	23 (9)	231 (91)	
Other/unspecified	552	83 (15)	469 (85)	
Year of medical school graduation^a				<0.001 ⁺
<1970	2525	187 (7)	2338 (93)	
1971-1980	3190	440 (14)	2750 (86)	
1981-1990	3228	760 (23)	2468 (77)	
1991-2005	1519	743 (49)	776 (51)	
Practice size^a				<0.001
Solo/Two-person	2984	294 (10)	2690 (90)	
Group	5784	1385 (24)	4399 (76)	
HMO/Hospital	505	115 (23)	390 (77)	
Medical School	331	98 (30)	233 (70)	
Other/unclassified	858	238 (28)	620 (72)	
Rural/urban status^b				<0.001
Urban	9680	2034 (21)	7646 (79)	
Micropolitan	652	78 (12)	574 (88)	
Rural	129	17 (13)	112 (87)	
Academic Affiliation^c				<0.001
Major	2565	679 (26)	1886 (74)	
Minor	4032	773 (19)	3259 (81)	
None	3896	677 (17)	3219 (83)	
NCI Cancer Center Affiliation^d				<0.001
Yes	831	230 (28)	601 (72)	
No	10059	1956 (19)	8103 (81)	

*p-value for association between provider characteristics and kidney cancer surgery type; a-data missing in 455 cases; ⁺Mantel-Haenszel Chi-Square test used for ordinal data; b-data missing in 456 cases; c-data missing in 424 cases; d-data missing from 27 cases

Table 3. Surgeon and practice setting factors associated with LRN[#]

	Adjusted OR	95% CI
Year of medical school graduation <1991		
Academic affiliation		
Minor or no affiliation*	1.00	
Major affiliation	1.78	1.34-2.38
Practice type		
Solo/two-person*	1.00	
Group	1.99	1.51-2.63
HMO/hospital/Medical School/Others	1.91	1.28-2.84
Rural/urban status		
Rural/Micropolitan*	1.00	
Urban	1.18	0.75-1.85
NCI Cancer Center Status		
No*	1.00	
Yes	0.72	0.45-1.17
Year of medical school graduation ≥ 1991		
Academic affiliation		
Minor or no affiliation*	1.00	
Major affiliation	1.05	0.61-1.79
Practice type		
Solo/two-person*	1.00	
Group	1.01	0.44-2.31
HMO/hospital/Medical School/Others	0.97	0.40-2.32
Rural/urban status		
Rural/Micropolitan*	1.00	
Urban	2.92	1.10-7.75
NCI Cancer Center		
No*	1.00	
Yes	2.37	1.11-5.06

Model adjusted for patient age, year of surgery, patient comorbidity, tumor size, provider gender, and provider case volume, with statistically significant interactions of year of medical school graduation with academic affiliation and NCI cancer center; +Odds ratios and 95% CI for covariate effect on receipt of LRN versus ORN; *Denotes reference group