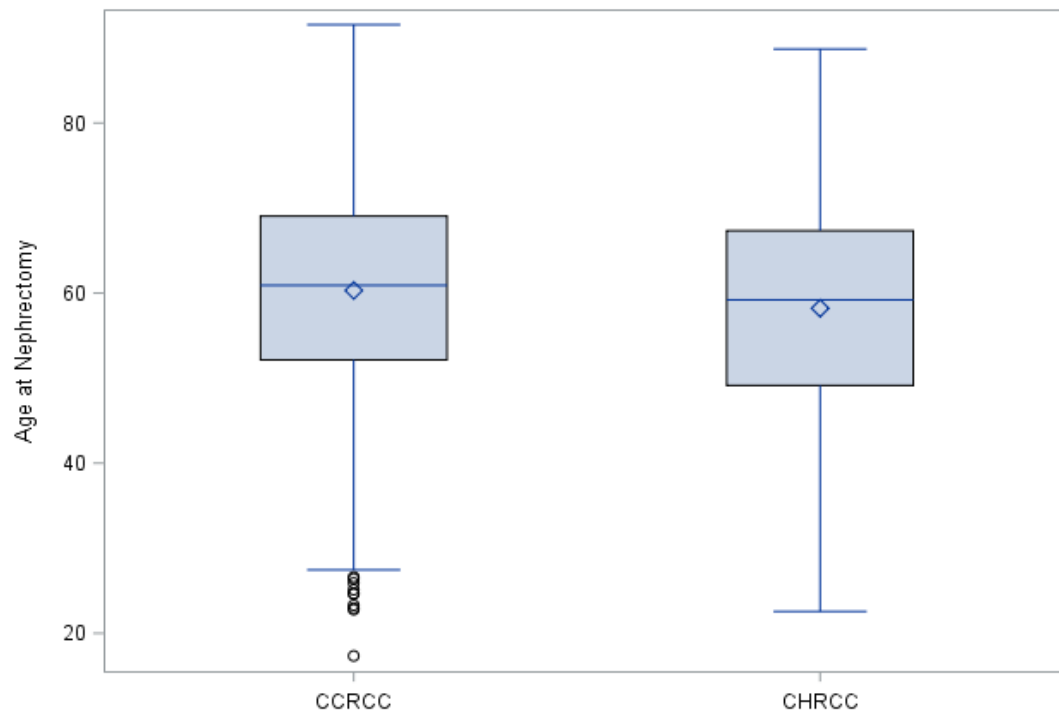


Supplementary Tables and Figures

Supplementary Figure 1. Distribution of age at nephrectomy by histological subtype. The lower end of the box shows the 25th percentile and the upper end of box shows the 75th percentile. The diamond inside the box is the mean and the line inside the box is the median. The 'whisker' coming out of the box shows, unless there are outliers, show the min (lower whisker) and max (upper whisker). If there are outliers open circles denote these and the whisker is cut off at 1.5 times the IQR. IQR is interquartile range which is the 75th percentile – the 25th percentile (top of box – bottom of box). The bigger the box the more variability



Supplementary Table 1. Surgery procedures performed in the cohorts.

	Total (n=3808)	ccRCC (n=3312)	chRCC (n=496)	p-value
Procedure (%)				<.0001
Open Partial Nephrectomy	1535 (40.3)	1289 (38.9)	246 (49.6)	
Open Radical Nephrectomy	1592 (41.8)	1426 (43.1)	166 (33.5)	
Laparoscopic Partial Nephrectomy	193 (5.1)	170 (5.1)	23 (4.6)	
Laparoscopic Radical Nephrectomy	137 (3.6)	118 (3.6)	19 (3.8)	
Robotic Partial Nephrectomy	288 (7.6)	247 (7.5)	41 (8.3)	
Robotic Radical Nephrectomy	63 (1.7)	62 (1.9)	1 (0.2)	

Supplementary Table 2. Surgery type by the year. Things to note robotic surgery did not begin until 2005-2009 and became more common in 2010-2014. Lap surgery did not begin until 2005-2009 and became more common from 2005-2009. These patterns indicate that the patients before 2000 were treated differently due to new technology being developed after 2000.

	Total (n=3808)	ccRCC (n=3312)	chRCC (n=496)	p-value
Surgery years (%)				0.06
1990-1994	258 (6.8)	239 (7.2)	19 (3.8)	
1995-1999	418 (11)	370 (11.2)	48 (9.7)	
2000-2004	700 (18.4)	597 (18)	103 (20.8)	
2005-2009	985 (25.9)	853 (25.8)	132 (26.6)	
2010-2014	1182 (31)	1027 (31)	155 (31.3)	
2015-2016	265 (7)	226 (6.8)	39 (7.9)	

Supplementary Table 3. Univariate analysis in chRCC. Size, sarcomatoid, and T-Stage are significant in OS and metastatic RFS. Age is also significant in OS. Necrosis is significant in metastatic RFS

Parameter	Recurrence Free Survival					Overall Survival				
		Hazard Ratio	CI Lower	CI Upper	P-val		Hazard Ratio	CI Lower	CI Upper	P-val
BMI		1.033	0.958	1.115	0.3985		1.017	0.958	1.080	0.5718
Gender (Male vs Female)		1.069	0.485	2.355	0.8679		1.085	0.667	1.767	0.7417
Multifocality (Yes vs No)		0.750	0.101	5.552	0.7779		1.224	0.444	3.372	0.6959
Necrosis (Yes vs No)		3.233	1.105	9.460	0.0322		2.062	0.818	5.195	0.1249
Race (... vs White)	Asian	1.051	0.142	7.796	0.9611	Asian	0.519	0.072	3.752	0.5156
	Black	0.513	0.069	3.802	0.5138	Black	1.801	0.819	3.961	0.1432
	Other	0.000	0.000	.	0.9897	Other	0.000	0.000	.	0.9871
Size		1.236	1.157	1.321	<.0001		1.090	1.039	1.143	0.0004
Age		0.985	0.955	1.015	0.3203		1.067	1.042	1.093	<.0001
Sarcomatoid (Yes vs No)		40.747	13.363	124.245	<.0001		38.686	14.721	101.662	<.0001
Surgery Year (... vs 1990-1995)	1995-1999	0.384	0.078	1.904	0.2415	1995-1999	2.050	0.688	6.106	0.1972
	2000-2004	0.484	0.128	1.824	0.2835	2000-2004	2.324	0.785	6.884	0.1278
	2005-2009	0.627	0.173	2.274	0.4775	2005-2009	1.703	0.524	5.534	0.3756
	2010-2014	0.000	0.000	.	0.9858	2010-2014	0.558	0.095	3.285	0.5190
	2015-2016	0.000	0.000	.	0.9955	2015-2016	0.000	0.000	.	0.9862
T-Stage (T3 or T4 vs T1 or T2)		5.035	2.283	11.105	<.0001		2.660	1.618	4.372	.0001

Supplementary Table 4. Univariate analysis in ccRCC. BMI, Gender, Fuhrman Grade, Size, Age, Sarcomatoid, Surgery year, and T-Stage were all significant in both OS and met RFS survival in ccRCC patients. Race was statistically different between White and Asian for OS but not metastatic RFS

Parameter	Recurrence Free Survival					Overall Survival				
		Hazard Ratio	CI Lower	CI Upper	P-val		Hazard Ratio	CI Lower	CI Upper	P-val
BMI		0.978	0.967	0.989	0.0002		0.989	0.979	0.998	0.0197
Gender (Male vs Female)		1.464	1.202	1.783	0.0001		1.195	1.038	1.376	0.0133
Multifocality (Yes vs No)		1.014	0.711	1.445	0.9402		1.110	0.850	1.450	0.4419
Fuhrman Grade		3.038	2.674	3.452	<.0001		2.112	1.915	2.329	<.0001
Race (... vs White)	Asian	0.961	0.607	1.520	0.8644	Asian	0.635	0.407	0.989	0.0446
	Black	0.756	0.436	1.313	0.3209	Black	0.762	0.515	1.127	0.1729
	Other	0.820	0.307	2.195	0.6934	Other	1.224	0.656	2.283	0.5256
Size		1.212	1.195	1.229	<.0001		1.151	1.133	1.169	<.0001
Age		1.012	1.005	1.020	0.0015		1.047	1.041	1.054	<.0001
Sarcomatoid (Yes vs No)		6.637	5.091	8.654	<.0001		5.298	4.198	6.685	<.0001
Surgery Year (... vs 1990-1995)	1995-1999	0.674	0.486	0.934	0.0177	1995-1999	0.802	0.651	0.988	0.0386
	2000-2004	0.765	0.570	1.025	0.0729	2000-2004	0.817	0.664	1.004	0.0542
	2005-2009	0.640	0.478	0.855	0.0026	2005-2009	0.640	0.510	0.803	0.0001
	2010-2014	0.437	0.317	0.602	<.0001	2010-2014	0.613	0.463	0.811	0.0006
	2015-2016	0.106	0.026	0.434	0.0018	2015-2016	0.628	0.196	2.016	0.4345
T-Stage (T3 or T4 vs T1 or T2)		6.583	5.210	8.318	<.0001		3.428	2.855	4.116	<.0001