

**THE BRITISH ASSOCIATION OF  
UROLOGICAL SURGEONS  
Section of Oncology**

**Analyses of Nephrectomies performed between**

**January 1<sup>st</sup> and December 31<sup>st</sup> 2017**

### **Copyright**

It is important to remind you that, under the Copyright Designs and Patents Act 1988 (CDPA) copyright of this Report, including the charts produced in it, is owned by The British Association of Urological Surgeons Limited (BAUS). Copying or reproducing any part of this material in any other publication without seeking the prior permission of BAUS is a breach of copyright.

Please contact Mrs Sarah Fowler (E-mail: [sarahfowler99@gmail.com](mailto:sarahfowler99@gmail.com))

## AUDIT RESULTS SUMMARY – Nephrectomy dataset (2017 data)

All the data presented here are a summary of the data extracted from the web-based database on 19<sup>th</sup> June 2018 and relate to operations performed during the whole of 2017. Once extracted the data was transferred to an Access™ database for validation before being imported into Tableau™ for generation of the analyses. The validation mainly comprised checks for duplicate and / or empty entries and invalid / inappropriate dates.

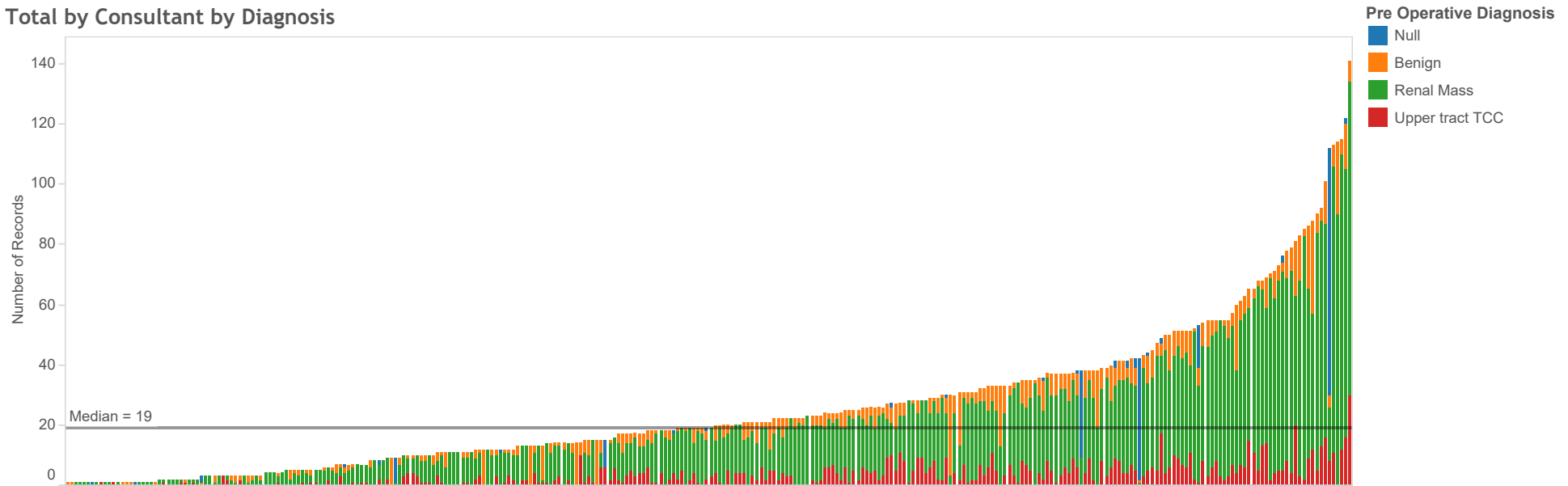
The data collection period was from 1 January 2017 to 31 December 2017.

- 7,870 procedures were recorded from 302 consultants at 130 NHS centres in the UK, including 267 private patients from 71 consultants. (England only for 2017 was 7,230)
- Median number of cases per consultant: 19 (range 1 – 141)
- Median number of cases per centre: 37 (range 1 - 369)
- 929 cases (12%) were bulk uploaded from other systems with the remaining data being entered on an individual patient basis.
- Hospital Episode Statistics (HES) for 2017 indicate that there were 8,117 nephrectomies undertaken by urologists in 2017. Therefore, we captured data on 89% of the nephrectomies undertaken by urologists in England during 2017.

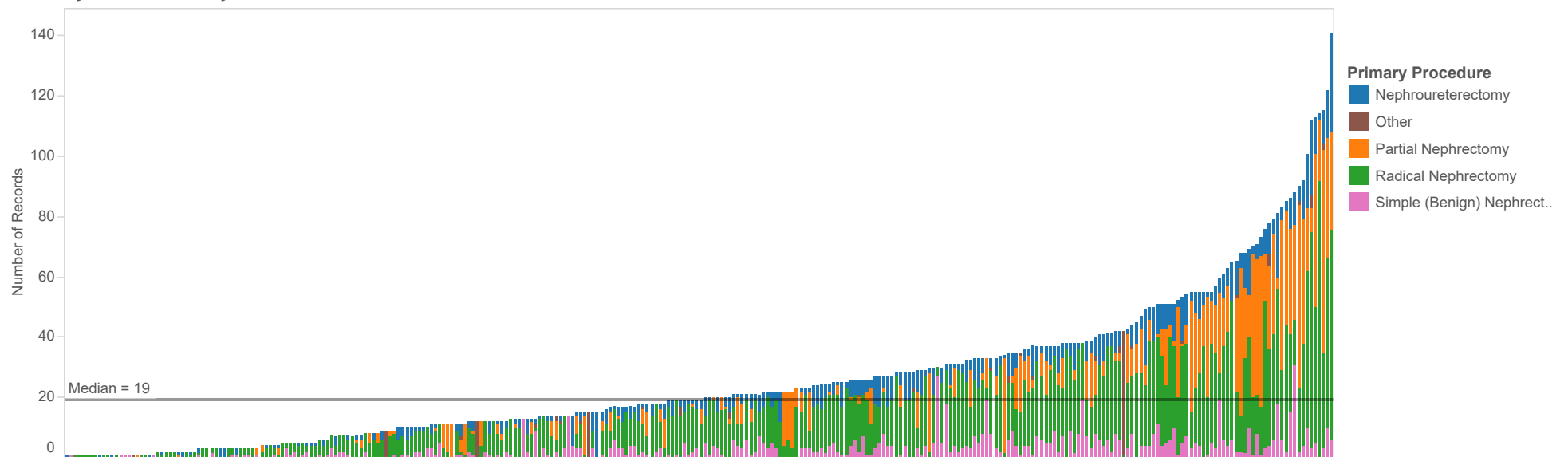
# Total Returns for Procedures Performed Between 01/01/2017 and 31/12/2017

7,870 procedures from 302 Consultants from 130 NHS Centres in the UK - including 267 private cases from 71 consultants

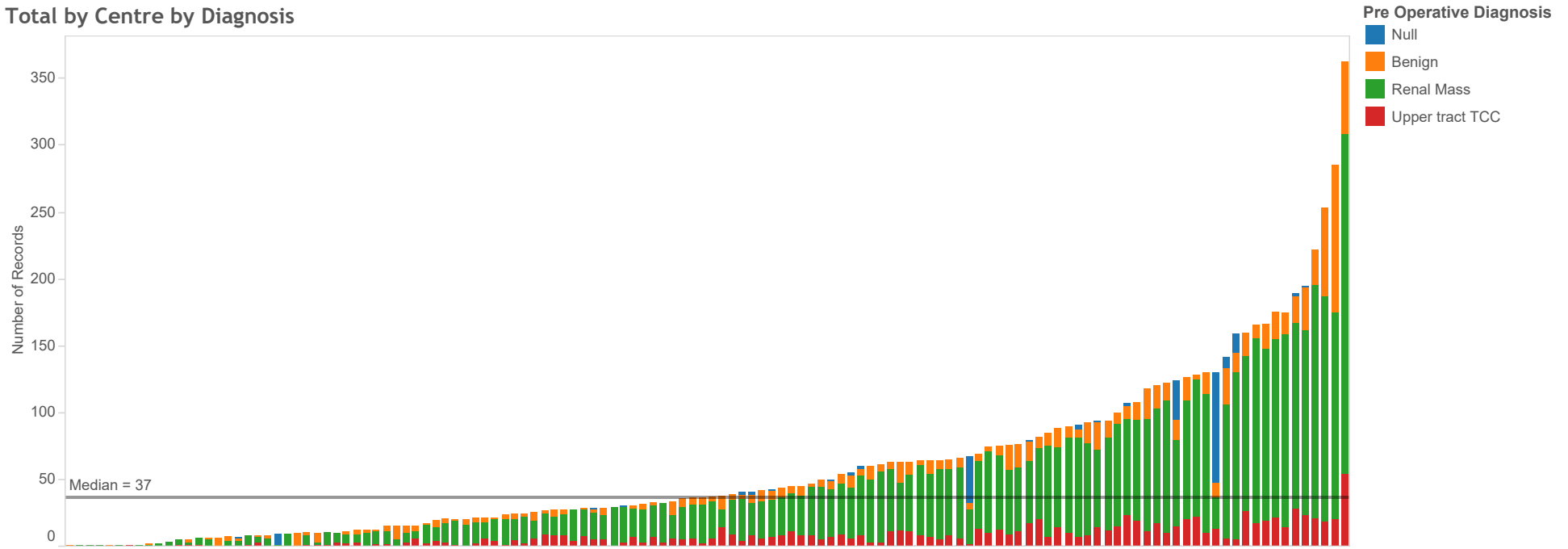
Total by Consultant by Diagnosis



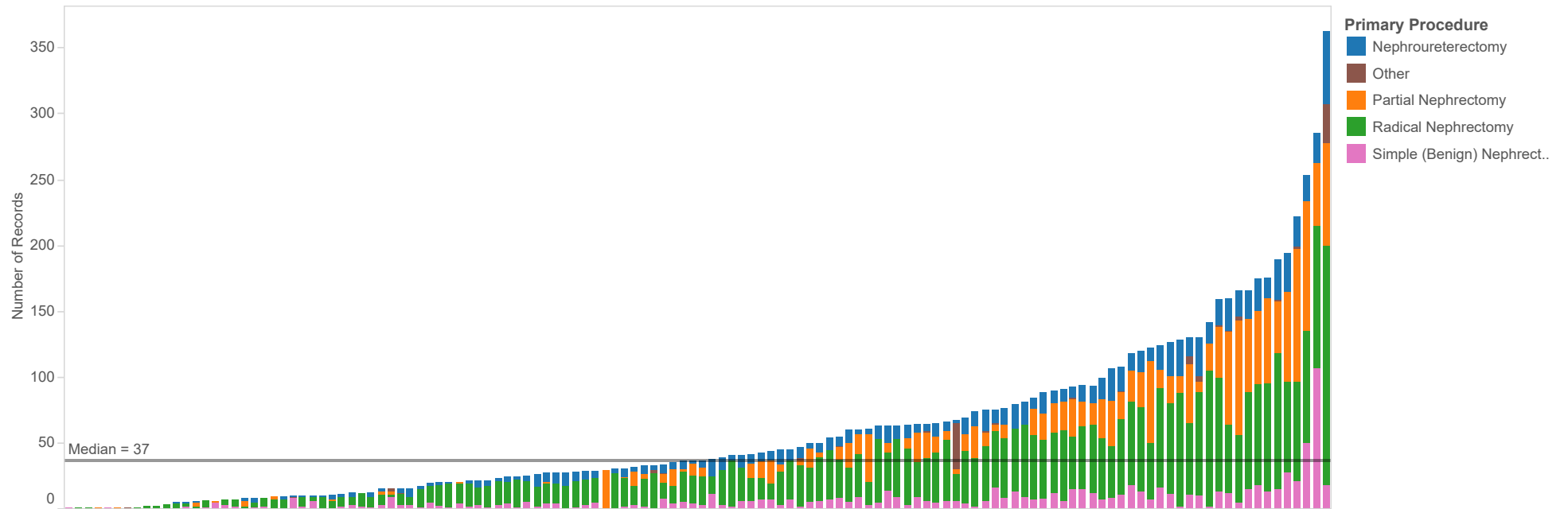
Total by Consultant by Procedure



Total by Centre by Diagnosis



Total by Centre by Procedure



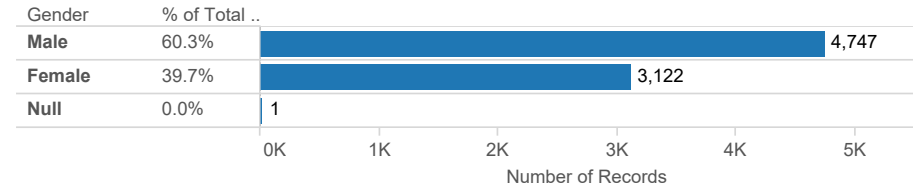
### Pre-op Presentation

Pre Op Pres..	N	% of Total
Haematuria	1,724	21.9%
Incidental	3,574	45.4%
Other	1,745	22.2%
Not recorded	827	10.5%
<b>Grand Total</b>	<b>7,870</b>	<b>100.0%</b>

### Age

Agegroup	% of Total	N
41-50	11.88%	935
51-60	21.45%	1,688
61-70	29.86%	2,350
71-80	23.60%	1,857
<=40	7.46%	587
>80	5.74%	452
<b>Grand Total</b>	<b>100.00%</b>	<b>7,869</b>

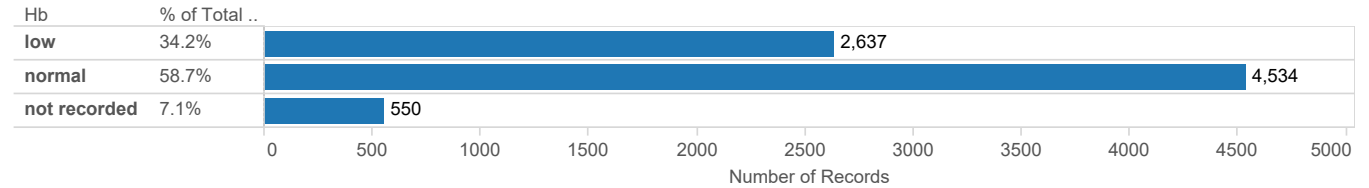
### Gender



### WHO Performance Status

Who Perfor..	N	% of Total
0	3,968	50.42%
1	2,362	30.01%
2	687	8.73%
3	125	1.59%
4	21	0.27%
Not recorded	707	8.98%
<b>Grand Total</b>	<b>7,870</b>	<b>100.00%</b>

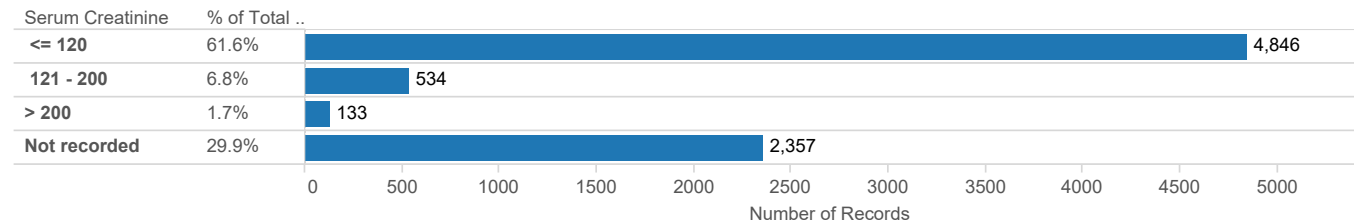
### Hb at Operation



### eGFR

Egfr Normal	N	% of Total
Yes (>60)	4,123	52.39%
No	1,341	17.04%
Not recorded	2,406	30.57%
<b>Grand Total</b>	<b>7,870</b>	<b>100.00%</b>

### Serum Creatinine



## Diagnosis

Pre Operative Di..	N	% of Total
Benign	1,122	14.26%
Renal Mass	5,544	70.44%
Upper tract TCC	995	12.64%
Not recorded	209	2.66%
<b>Grand Total</b>	<b>7,870</b>	<b>100.00%</b>

## Non-Malignant Diagnosis

Non Malignant Diagnosis	N	% of Total
Being performed as a donor	142	12.66%
Non-functioning kidney	521	46.43%
Polycystic	27	2.41%
Pyelonephritis	53	4.72%
Stone disease	118	10.52%
Xanthogranulomatous pyelonephritis	46	4.10%
Oncocytoma	8	0.71%
Other	83	7.40%
Not recorded	124	11.05%
<b>Grand Total</b>	<b>1,122</b>	<b>100.00%</b>

## Post-Op Final Histological Diagnosis

PostOp Final Histological Diagnosis	N	% of Total
Clear cell renal cell ca	3,764	47.83%
TCC	846	10.75%
Chromophobe	259	3.29%
Collecting duct	6	0.08%
Papillary	504	6.40%
Other Cancer	134	1.70%
Angiomyolipoma	59	0.75%
Oncocytoma	305	3.88%
Sarcoma	22	0.28%
Other benign	952	12.10%
Not recorded	1,019	12.95%
<b>Grand Total</b>	<b>7,870</b>	<b>100.00%</b>

### Tstage

Tstage (group)	N	% of Total
1	3,209	47.55%
2	811	12.02%
3	1,802	26.70%
4	121	1.79%
a	320	4.74%
is	10	0.15%
Not recorded / Unknown	475	7.04%
<b>Grand Total</b>	<b>6,748</b>	<b>100.00%</b>

### Nstage

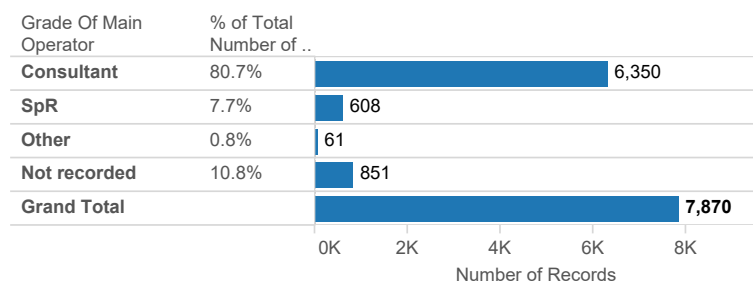
Nstage (group)	N	% of Total
0	4,894	72.53%
1	192	2.85%
2	89	1.32%
3	3	0.04%
Not recorded / Unknown	1,570	23.27%
<b>Grand Total</b>	<b>6,748</b>	<b>100.00%</b>

### Mstage

Mstage (group)	N	% of Total
0	3,754	55.63%
1	241	3.57%
Not recorded / Unknown	2,753	40.80%
<b>Grand Total</b>	<b>6,748</b>	<b>100.00%</b>

N.B. Pathological category used where available else clinical category

### Grade of Operating Surgeon



### Procedure by Technique

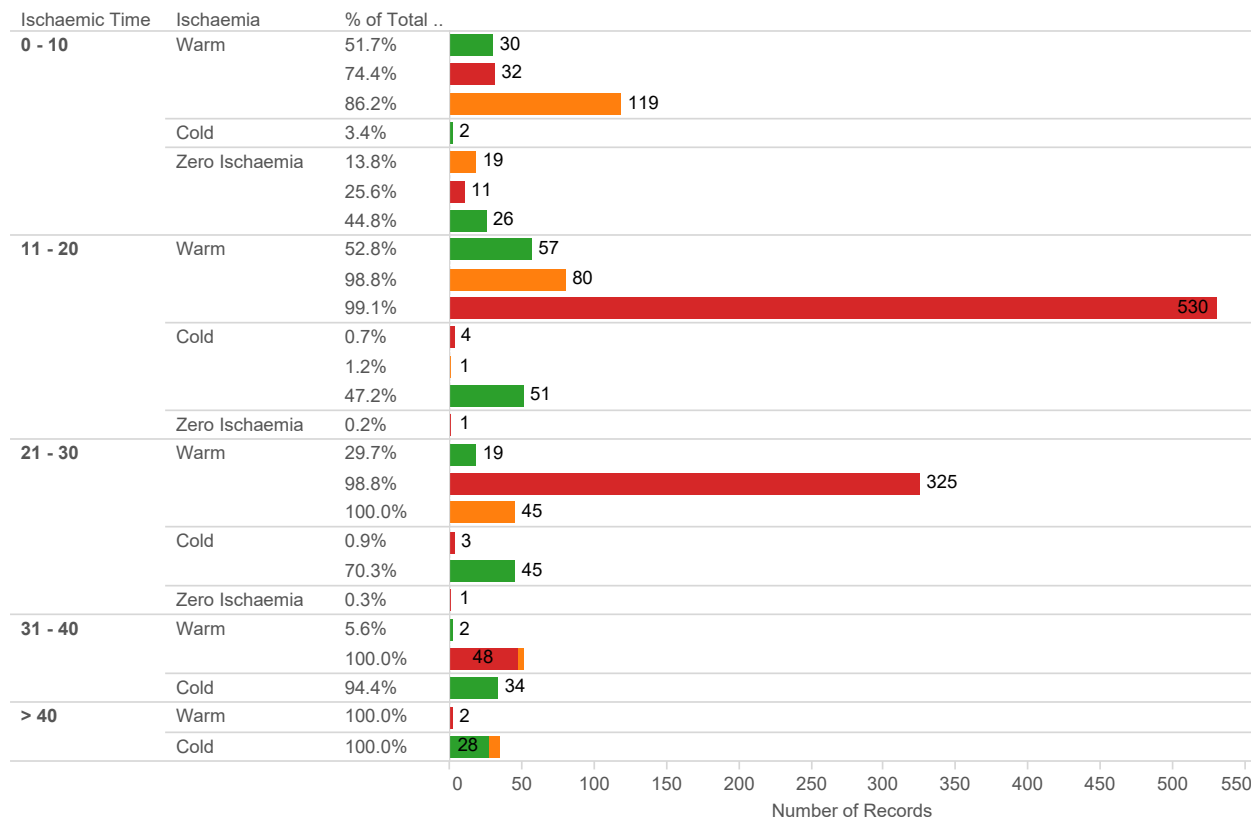
Primary Procedure	Technique (group)					Grand Total	
	Open	Laparoscopic	Robotic	Not recorded			
	% of Total Number of Records .. N	% of Total Number of Records .. N	% of Total Number of Records .. N	% of Total Number of Records .. N	% of Total Number of Records .. N	% of Total Number of Records .. N	% of Total Number of Records .. N
Radical Nepr..	811 20.20%	2,861 71.26%	213 5.31%	130 3.24%	4,015	100.00%	
Partial Nephr..	410 23.60%	239 13.76%	1,064 61.26%	24 1.38%	1,737	100.00%	
Nephrourete..	74 6.68%	873 78.79%	104 9.39%	57 5.14%	1,108	100.00%	
Simple (Beni..	122 13.63%	730 81.56%	31 3.46%	12 1.34%	895	100.00%	
Other	24 20.87%	41 35.65%	5 4.35%	45 39.13%	115	100.00%	
<b>Grand Total</b>	<b>1,441 18.31%</b>	<b>4,744 60.28%</b>	<b>1,417 18.01%</b>	<b>268 3.41%</b>	<b>7,870</b>	<b>100.00%</b>	



## Indication for Partial Nephrectomies

Partial Indication	Technique (group)									
	Open		Laparoscopic		Robotic		Not recorded		Grand Total	
	N	% of Total Number of Records ..	N	% of Total Number of Records ..	N	% of Total Number of Records ..	N	% of Total Number of Records ..	N	% of Total Number of Records ..
<b>Absolute</b>	81	70.43%	6	5.22%	28	24.35%			115	100.00%
<b>Elective</b>	201	17.57%	158	13.81%	783	68.44%	2	0.17%	1,144	100.00%
<b>Relative</b>	41	26.45%	12	7.74%	102	65.81%			155	100.00%
<b>Not recorded</b>	87	26.93%	63	19.50%	151	46.75%	22	6.81%	323	100.00%
<b>Grand Total</b>	410	23.60%	239	13.76%	1,064	61.26%	24	1.38%	1,737	100.00%

## Ischaemic Time



## Tumour size by Procedure & Technique

		Primary Procedure											
Max Diamete..	Technique (g..	Radical Nephrectomy		Partial Nephrectomy		Nephroureterectomy		Other		Simple (Benign) Ne..		Grand Total	
		N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..
<=4	Open	33	14.29%	180	77.92%	18	7.79%					231	100.00%
	Not recorded	2	100.00%									2	100.00%
	Laparoscopic	545	50.14%	146	13.43%	393	36.15%	2	0.18%	1	0.09%	1,087	100.00%
	Robotic	35	4.48%	709	90.78%	37	4.74%					781	100.00%
>4 - 7	Open	98	47.34%	94	45.41%	14	6.76%	1	0.48%			207	100.00%
	Laparoscopic	1,045	85.31%	16	1.31%	163	13.31%			1	0.08%	1,225	100.00%
	Robotic	65	31.10%	125	59.81%	19	9.09%					209	100.00%
>7 - 10	Open	200	90.50%	13	5.88%	3	1.36%	5	2.26%			221	100.00%
	Laparoscopic	523	93.73%	1	0.18%	34	6.09%					558	100.00%
	Robotic	45	83.33%	7	12.96%	2	3.70%					54	100.00%
>10	Open	316	96.05%	7	2.13%	5	1.52%	1	0.30%			329	100.00%
	Laparoscopic	183	87.98%	4	1.92%	21	10.10%					208	100.00%
	Robotic	16	48.48%	16	48.48%			1	3.03%			33	100.00%
Not Recorded	Open	164	36.20%	116	25.61%	34	7.51%	17	3.75%	122	26.93%	453	100.00%
	Not recorded	128	48.12%	24	9.02%	57	21.43%	45	16.92%	12	4.51%	266	100.00%
	Laparoscopic	565	33.91%	72	4.32%	262	15.73%	39	2.34%	728	43.70%	1,666	100.00%
	Robotic	52	15.29%	207	60.88%	46	13.53%	4	1.18%	31	9.12%	340	100.00%
<b>Grand Total</b>		4,015	51.02%	1,737	22.07%	1,108	14.08%	115	1.46%	895	11.37%	7,870	100.00%

## Operating Time by Procedure & Technique

		Primary Procedure											
Operating Ti..	Technique (group)	Radical Nephrectomy		Partial Nephrectomy		Nephroureterectomy		Other		Simple (Benign) Ne..		Grand Total	
		N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..
< 60 mins	Open	4	30.77%	5	38.46%			2	15.38%	2	15.38%	13	100.00%
	Laparoscopic	106	77.94%	3	2.21%	2	1.47%			25	18.38%	136	100.00%
	Robotic	2	28.57%	5	71.43%							7	100.00%
1 - 2 hours	Open	126	46.84%	100	37.17%	6	2.23%	1	0.37%	36	13.38%	269	100.00%
	Laparoscopic	887	70.45%	66	5.24%	86	6.83%	4	0.32%	216	17.16%	1,259	100.00%
	Robotic	53	17.38%	240	78.69%	2	0.66%			10	3.28%	305	100.00%
> 2 - 3 hours	Open	276	55.65%	159	32.06%	17	3.43%	5	1.01%	39	7.86%	496	100.00%
	Laparoscopic	1,129	62.83%	103	5.73%	315	17.53%	6	0.33%	244	13.58%	1,797	100.00%
	Robotic	74	12.46%	482	81.14%	27	4.55%	1	0.17%	10	1.68%	594	100.00%
	Not recorded	1	50.00%	1	50.00%							2	100.00%
> 3 - 4 hours	Open	187	68.75%	49	18.01%	15	5.51%	5	1.84%	16	5.88%	272	100.00%
	Laparoscopic	335	47.86%	23	3.29%	240	34.29%	3	0.43%	99	14.14%	700	100.00%
	Robotic	35	13.89%	180	71.43%	34	13.49%	2	0.79%	1	0.40%	252	100.00%
> 4 - 6 hours	Open	64	57.14%	19	16.96%	14	12.50%	5	4.46%	10	8.93%	112	100.00%
	Laparoscopic	102	38.93%	4	1.53%	120	45.80%	1	0.38%	35	13.36%	262	100.00%
	Robotic	17	19.32%	47	53.41%	23	26.14%			1	1.14%	88	100.00%
> 6 hours	Open	25	89.29%			2	7.14%			1	3.57%	28	100.00%
	Laparoscopic	8	29.63%	1	3.70%	15	55.56%			3	11.11%	27	100.00%
	Robotic	2	40.00%	2	40.00%	1	20.00%					5	100.00%
<b>Grand Total</b>		3,433	51.83%	1,489	22.48%	919	13.87%	35	0.53%	748	11.29%	6,624	100.00%

## Blood Loss by Procedure & Technique

		Primary Procedure											
Measured Bl..	Technique (g..	Radical Nephrectomy		Partial Nephrectomy		Nephroureterectomy		Other		Simple (Benign) Ne..		Grand Total	
		N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..	N	% of Tot..
< 500	Open	408	50.56%	272	33.71%	41	5.08%	9	1.12%	77	9.54%	807	100.00%
	Laparoscopic	2,384	60.80%	176	4.49%	722	18.41%	8	0.20%	631	16.09%	3,921	100.00%
	Robotic	171	14.00%	939	76.90%	91	7.45%	1	0.08%	19	1.56%	1,221	100.00%
	Not recorded	1	50.00%	1	50.00%							2	100.00%
> 500 - 1000	Open	144	66.36%	42	19.35%	7	3.23%	2	0.92%	22	10.14%	217	100.00%
	Laparoscopic	106	63.86%	10	6.02%	36	21.69%			14	8.43%	166	100.00%
	Robotic	5	9.43%	46	86.79%	1	1.89%			1	1.89%	53	100.00%
> 1000 - 2000	Open	86	69.92%	18	14.63%	5	4.07%	4	3.25%	10	8.13%	123	100.00%
	Laparoscopic	31	64.58%	3	6.25%	7	14.58%			7	14.58%	48	100.00%
	Robotic	3	30.00%	7	70.00%							10	100.00%
> 2000 - 5000	Open	40	85.11%	3	6.38%	1	2.13%	1	2.13%	2	4.26%	47	100.00%
	Laparoscopic	5	35.71%	2	14.29%	4	28.57%			3	21.43%	14	100.00%
	Robotic	2	40.00%	3	60.00%							5	100.00%
> 5000	Open	10	90.91%							1	9.09%	11	100.00%
	Laparoscopic	3	100.00%									3	100.00%
<b>Grand Total</b>		3,399	51.13%	1,522	22.89%	915	13.76%	25	0.38%	787	11.84%	6,648	100.00%

## Transfusion Rate

Blood Transfused	N	% of Total
Not transfused	7,051	95.04%
Transfused	368	4.96%
<b>Grand Total</b>	7,419	100.00%

## Transfusions by Procedure & Technique

		Primary Procedure											
Blood Transfused	Technique (group)	Radical Nephrectomy		Partial Nephrectomy		Nephroureterectomy		Other		Simple (Benign) Nephrectomy		Grand Total	
		N	% of Total Number of Records a..	N	% of Total Number of Records a..	N	% of Total Number of Records a..	N	% of Total Number of Records a..	N	% of Total Number of Records a..	N	% of Total Number of Records ..
<b>Transfused</b>	Open	183	76.89%	18	7.56%	12	5.04%	3	1.26%	22	9.24%	238	100.00%
	Laparoscopic	64	56.64%	7	6.19%	25	22.12%			17	15.04%	113	100.00%
	Robotic	6	35.29%	8	47.06%	3	17.65%					17	100.00%
<b>Not transfused</b>	Open	599	52.04%	378	32.84%	57	4.95%	18	1.56%	99	8.60%	1,151	100.00%
	Laparoscopic	2,750	60.72%	226	4.99%	836	18.46%	9	0.20%	708	15.63%	4,529	100.00%
	Robotic	195	14.24%	1,046	76.41%	96	7.01%	2	0.15%	30	2.19%	1,369	100.00%
	Not recorded	1	50.00%	1	50.00%							2	100.00%
<b>Grand Total</b>		3,798	51.19%	1,684	22.70%	1,029	13.87%	32	0.43%	876	11.81%	7,419	100.00%

### Clavien Dindo Grade III plus Complication Rate

Grade3Plus (..	N	% of Total
Grade III plus	189	2.58%
No	7,145	97.42%
<b>Grand Total</b>	<b>7,334</b>	<b>100.00%</b>

### Mortality rate (30 day)

30 Day mort..	N	% of Total
No	7,846	99.70%
Yes	24	0.30%
<b>Grand Total</b>	<b>7,870</b>	<b>100.00%</b>

### Clavien Dindo Grades by procedure & Technique

Clavien Dindo Grade Of Complicatio..	Primary Procedure	Technique (group)							
		Open		Laparoscopic		Robotic		Grand Total	
		N	% of Total Number of Records ..	N	% of Total Number of Records ..	N	% of Total Number of Records ..	N	% of Total Number of Records ..
<b>Grade IIIa</b>	Radical Nephrectomy	7	28.00%	18	72.00%			25	100.00%
	Partial Nephrectomy	11	44.00%	5	20.00%	9	36.00%	25	100.00%
	Nephroureterectomy	2	33.33%	4	66.67%			6	100.00%
	Other			1	100.00%			1	100.00%
	Simple (Benign) Nephrectomy	4	36.36%	7	63.64%			11	100.00%
	<b>Total</b>	<b>24</b>	<b>35.29%</b>	<b>35</b>	<b>51.47%</b>	<b>9</b>	<b>13.24%</b>	<b>68</b>	<b>100.00%</b>
<b>Grade IIIb</b>	Radical Nephrectomy	10	41.67%	14	58.33%			24	100.00%
	Partial Nephrectomy	9	39.13%	8	34.78%	6	26.09%	23	100.00%
	Nephroureterectomy	2	10.00%	16	80.00%	2	10.00%	20	100.00%
	Simple (Benign) Nephrectomy	4	40.00%	6	60.00%			10	100.00%
		<b>Total</b>	<b>25</b>	<b>32.47%</b>	<b>44</b>	<b>57.14%</b>	<b>8</b>	<b>10.39%</b>	<b>77</b>
<b>Grade IVa</b>	Radical Nephrectomy	6	54.55%	5	45.45%			11	100.00%
	Partial Nephrectomy	3	75.00%			1	25.00%	4	100.00%
	Nephroureterectomy	1	25.00%	2	50.00%	1	25.00%	4	100.00%
	Simple (Benign) Nephrectomy			1	100.00%			1	100.00%
		<b>Total</b>	<b>10</b>	<b>50.00%</b>	<b>8</b>	<b>40.00%</b>	<b>2</b>	<b>10.00%</b>	<b>20</b>
<b>Grade IVb</b>	Radical Nephrectomy	1	100.00%					1	100.00%
	Nephroureterectomy			2	100.00%			2	100.00%
		<b>Total</b>	<b>1</b>	<b>33.33%</b>	<b>2</b>	<b>66.67%</b>			<b>3</b>
<b>Grade V</b>	Radical Nephrectomy	7	41.18%	9	52.94%	1	5.88%	17	100.00%
	Partial Nephrectomy			1	50.00%	1	50.00%	2	100.00%
	Other	1	100.00%					1	100.00%
	Simple (Benign) Nephrectomy			1	100.00%			1	100.00%
		<b>Total</b>	<b>8</b>	<b>38.10%</b>	<b>11</b>	<b>52.38%</b>	<b>2</b>	<b>9.52%</b>	<b>21</b>
<b>Grand Total</b>		<b>68</b>	<b>35.98%</b>	<b>100</b>	<b>52.91%</b>	<b>21</b>	<b>11.11%</b>	<b>189</b>	<b>100.00%</b>

## Conversions

### Primary Procedure

If Minimally I..	Conversion Reason	Radical Nephrectomy		Partial Nephrectomy		Nephroureterectomy		Other		Simple (Benign) Nephrectomy		Grand Total	
		N	% of Total	N	% of Total	N	% of Total	N	% of Total	N	% of Total	N	% of Total
<b>Yes</b>	Adhesions	6	0.24%			2	0.26%			6	0.90%	14	0.34%
	Bowel perforation	1	0.04%									1	0.02%
	Difficult dissection	13	0.52%	2	1.11%	6	0.79%			14	2.11%	35	0.84%
	Failure to progress	11	0.44%	2	1.11%					11	1.65%	24	0.58%
	Haemorrhage	29	1.16%	2	1.11%	3	0.39%			2	0.30%	36	0.87%
	Patient obesity	5	0.20%			1	0.13%			1	0.15%	7	0.17%
	Size of tumour / mass	15	0.60%	2	1.11%	2	0.26%			1	0.15%	20	0.48%
	Other	7	0.28%	2	1.11%	3	0.39%			2	0.30%	14	0.34%
	Not recorded / Applicable									1	0.15%	1	0.02%
	<b>Total</b>		87	3.48%	10	5.56%	17	2.23%			38	5.71%	152
<b>No</b>	Not recorded / Applicable	2,415	96.52%	170	94.44%	747	97.77%	40	100.00%	627	94.29%	3,999	96.34%
	<b>Total</b>	2,415	96.52%	170	94.44%	747	97.77%	40	100.00%	627	94.29%	3,999	96.34%
<b>Grand Total</b>		2,502	100.00%	180	100.00%	764	100.00%	40	100.00%	665	100.00%	4,151	100.00%

## Intra-operative Complications

Intraoperative Complications	Primary Procedure	Technique (group)							
		Open		Laparoscopic		Robotic		Grand Total	
		N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..
<b>Yes</b>	Radical Neph..	76	43.18%	85	48.30%	15	8.52%	176	100.00%
	Partial Neph..	31	52.54%	7	11.86%	21	35.59%	59	100.00%
	Nephroureter..	5	15.63%	25	78.13%	2	6.25%	32	100.00%
	Simple (Benig..	19	52.78%	16	44.44%	1	2.78%	36	100.00%
	<b>Total</b>	131	43.23%	133	43.89%	39	12.87%	303	100.00%
<b>No</b>	Radical Neph..	664	19.35%	2,572	74.94%	195	5.68%	3,432	100.00%
	Partial Neph..	333	21.65%	185	12.03%	1,019	66.25%	1,538	100.00%
	Nephroureter..	54	5.76%	789	84.20%	94	10.03%	937	100.00%
	Simple (Benig..	98	12.30%	672	84.32%	27	3.39%	797	100.00%
	<b>Total</b>	1,149	17.14%	4,218	62.92%	1,335	19.91%	6,704	100.00%
<b>Not recorded</b>	Radical Neph..	71	17.44%	204	50.12%	3	0.74%	407	100.00%
	Partial Neph..	46	32.86%	47	33.57%	24	17.14%	140	100.00%
	Nephroureter..	15	10.79%	59	42.45%	8	5.76%	139	100.00%
	Simple (Benig..	5	8.06%	42	67.74%	3	4.84%	62	100.00%
	<b>Total</b>	137	18.32%	352	47.06%	38	5.08%	748	100.00%
<b>Grand Total</b>		1,417	18.27%	4,703	60.64%	1,412	18.21%	7,755	100.00%

## Specific Intra-operative Complications

Primary Procedure	Specific Intraoperative Com..	Technique (group)			
		Open	Laparos..	Robotic	Grand T..
<b>Radical Nephrectomy</b>	Bleeding	32	54	7	93
	Bleeding,Liver injury	1	1		2
	Bleeding,Other	1	4	1	6
	Bleeding,Pneumothorax	1			1
	Bleeding,Splenectomy	4	1		5
	Bowel injury	2	5	3	10
	Bowel injury,Pancreatic injury	1			1
	Liver injury	2	3		5
	Pancreatic injury	1	1		2
	Pneumothorax	8	3	1	12
	Pneumothorax,Other	1			1
	Splenectomy	9			9
	Other	12	11	2	25
	Not recorded	1	2	1	4
<b>Partial Nephrectomy</b>	Bleeding	12	5	12	29
	Bleeding,Other	2			2
	Bleeding,Splenectomy	1			1
	Bowel injury			3	3
	Pneumothorax	10	1	1	12
	Splenectomy		1		1
	Other	4		5	9
	Not recorded	2			2
<b>Nephroureterectomy</b>	Bleeding		13	2	15
	Bleeding,Bowel injury		1		1
	Bleeding,Other	1			1
	Bowel injury		3		3
	Bowel injury,Other		1		1
	Pneumothorax		1		1
	Splenectomy	1			1
	Other	3	5		8
	Not recorded		1		1
<b>Simple (Benign) Nephrectomy</b>	Bleeding	7	5		12
	Bleeding,Other	2			2
	Bleeding,Splenectomy	2			2
	Bowel injury	4	3		7
	Liver injury		1		1
	Pneumothorax	3	1		4
	Other	1	6	1	8
<b>Grand Total</b>		131	133	39	303

## Post-operative Complications

Postoperative Complications	Primary Procedure	Technique (group)						Grand Total	Grand Total
		Open		Laparoscopic		Robotic			
		N	% of Total N..	N	% of Total N..	N	% of Total N..		
<b>Yes</b>	Radical Nep..	128	32.08%	251	62.91%	20	5.01%	399	100.00%
	Partial Neph..	71	38.38%	37	20.00%	77	41.62%	185	100.00%
	Nephrouret..	14	10.61%	107	81.06%	11	8.33%	132	100.00%
	Simple (Ben..	24	28.24%	60	70.59%	1	1.18%	85	100.00%
<b>No</b>	Radical Nep..	656	19.36%	2,540	74.97%	190	5.61%	3,388	100.00%
	Partial Neph..	308	21.49%	187	13.05%	936	65.32%	1,433	100.00%
	Nephrouret..	59	6.68%	735	83.24%	89	10.08%	883	100.00%
	Simple (Ben..	94	12.22%	645	83.88%	30	3.90%	769	100.00%
<b>Not recorded</b>	Radical Nep..	27	11.84%	70	30.70%	3	1.32%	228	100.00%
	Partial Neph..	31	26.05%	15	12.61%	51	42.86%	119	100.00%
	Nephrouret..	1	1.08%	31	33.33%	4	4.30%	93	100.00%
	Simple (Ben..	4	9.76%	25	60.98%			41	100.00%
<b>Grand Total</b>		1,417	18.27%	4,703	60.64%	1,412	18.21%	7,755	100.00%

## Specific Post-operative Complications

Primary Procedure	Specific Postoperative Complic..	Technique (group)				Grand Tot..
		Open	Laparosc..	Robotic		
<b>Radical Nephrectomy</b>	Bleeding / haemorrhage +/- Others	9	20	1	30	
	Chest infection +/- Others	27	57		84	
	Ileus +/- others	21	31	7	59	
	Renal failure +/- others	5	10	1	16	
	DVT / PE +/- others	4	3		7	
	Problematic pain control +/- others	7	8	1	16	
	Wound infection +/- others	15	32	3	50	
	Other	40	88	7	135	
	Not recorded		2		2	
	<b>Partial Nephrectomy</b>	Bleeding / haemorrhage +/- Others	12	9	15	36
Chest infection +/- Others		22	9	19	50	
Ileus +/- others		6		1	7	
Renal failure +/- others		3	1	3	7	
DVT / PE +/- others		1		1	2	
Problematic pain control +/- others		3	2	3	8	
Wound infection +/- others		2	2	3	7	
Other		21	14	32	67	
Not recorded		1			1	
<b>Nephroureterectomy</b>		Bleeding / haemorrhage +/- Others	2	8	2	12
	Chest infection +/- Others	3	23	1	27	
	Ileus +/- others	5	19	3	27	
	Renal failure +/- others	1	1	1	3	
	DVT / PE +/- others		6		6	
	Problematic pain control +/- others		4	1	5	
	Wound infection +/- others	1	12		13	
	Other	2	33	3	38	
	Not recorded		1		1	
	<b>Simple (Benign) Nephrectomy</b>	Bleeding / haemorrhage +/- Others	1			1
Chest infection +/- Others		3	16		19	
Ileus +/- others		2	3		5	
Renal failure +/- others		1	1		2	
DVT / PE +/- others				1	1	
Problematic pain control +/- others		2	7		9	
Wound infection +/- others		5	13		18	
Other		10	19		29	
Not recorded			1		1	
<b>Grand Total</b>		237	455	109	801	

## Length of Stay

Technique (group)	Primary Procedure	N	% of Total	Median Length Of Stay	Min. Length Of Stay	Max. Length Of Stay
<b>Open</b>	Radical Nephrectomy	784	10.79%	6	0	87
	Partial Nephrectomy	384	5.28%	5	0	96
	Nephroureterectomy	71	0.98%	7	1	41
	Other	19	0.26%	6	1	46
	Simple (Benign) Nephrectomy	117	1.61%	7	0	99
	<b>Total</b>	<b>1,375</b>	<b>18.92%</b>	<b>6</b>	<b>0</b>	<b>99</b>
<b>Laparoscopic</b>	Radical Nephrectomy	2,775	38.19%	3	0	98
	Partial Nephrectomy	226	3.11%	3	1	28
	Nephroureterectomy	833	11.46%	4	1	96
	Other	9	0.12%	2	1	9
	Simple (Benign) Nephrectomy	700	9.63%	3	0	61
	<b>Total</b>	<b>4,543</b>	<b>62.52%</b>	<b>3</b>	<b>0</b>	<b>98</b>
<b>Robotic</b>	Radical Nephrectomy	206	2.84%	2	0	13
	Partial Nephrectomy	1,007	13.86%	2	0	31
	Nephroureterectomy	98	1.35%	3	0	28
	Other	2	0.03%	9	5	12
	Simple (Benign) Nephrectomy	31	0.43%	2	0	3
	<b>Total</b>	<b>1,344</b>	<b>18.50%</b>	<b>2</b>	<b>0</b>	<b>31</b>
<b>Not recorded</b>	Radical Nephrectomy	2	0.03%	3	2	3
	Partial Nephrectomy	2	0.03%	3	2	3
	<b>Total</b>	<b>4</b>	<b>0.06%</b>	<b>3</b>	<b>2</b>	<b>3</b>
<b>Grand Total</b>	<b>7,266</b>	<b>100.00%</b>	<b>3</b>	<b>0</b>	<b>99</b>	

## Nuclear Grade of Parenchymal Tumours

Nuclear grade	Margins1							
	Positive		Negative		Not recorded		Grand Total	
	N	% of Total Number of Recor..	N	% of Total Number of Recor..	N	% of Total Number of Recor..	N	% of Total Number of Recor..
<b>G1</b>	3	1.36%	119	53.85%	99	44.80%	221	100.00%
<b>G2</b>	30	2.24%	487	36.42%	820	61.33%	1,337	100.00%
<b>G3</b>	36	2.65%	275	20.28%	1,045	77.06%	1,356	100.00%
<b>G4</b>	8	1.56%	56	10.89%	450	87.55%	514	100.00%
<b>Not recorded</b>	20	2.72%	253	34.42%	462	62.86%	735	100.00%
<b>Grand Total</b>	<b>97</b>	<b>2.33%</b>	<b>1,190</b>	<b>28.59%</b>	<b>2,876</b>	<b>69.08%</b>	<b>4,163</b>	<b>100.00%</b>

## Grade of Urothelial Tumours

Urothelial Tumour Grade	N	% of Total
<b>G1</b>	42.0	4.96%
<b>G2</b>	258.0	30.50%
<b>G3</b>	451.0	53.31%
<b>Not recorded</b>	95.0	11.23%
<b>Grand Total</b>	<b>846.0</b>	<b>100.00%</b>



## Late Complications

Fulatecomplications	N	% of Total
None	1,065	79.06%
Renal impairment	12	0.89%
Wound	8	0.59%
Wound hernia	7	0.52%
Wound pain	9	0.67%
Wound,Wound pain	1	0.07%
DVT	2	0.15%
Other	26	1.93%
Not recorded	217	16.11%
<b>Grand Total</b>	<b>1,347</b>	<b>100.00%</b>

## Follow-Up

### Adjuvant management

Fuadjuvantmanagement	N	% of Total
None	563	41.77%
Clinical trial	8	0.59%
Immunotherapy	6	0.45%
Observation	485	35.98%
TKI's	26	1.93%
Other	21	1.56%
Not recorded	239	17.73%
<b>Grand Total</b>	<b>1,348</b>	<b>100.00%</b>

## Status at most recent follow-up

Fustatus	Fupatientstatus	Time to Follow -up							
		<= 6 months		> 6 months		Not recorded		Grand Total	
		N	% of Total	N	% of Total	N	% of Total	N	% of Total
Alive with no evidence of renal cancer	Alive	634	65.97%	290	75.13%	1	100.00%	925	68.62%
Alive with local recurrence of renal cancer	Alive	2	0.21%	2	0.52%			4	0.30%
Alive with lymph node involvement by renal cancer	Alive	7	0.73%	2	0.52%			9	0.67%
Alive with metastatic disease	Alive	25	2.60%	23	5.96%			48	3.56%
Discharged to GP / Other consultant	Alive	106	11.03%	12	3.11%			118	8.75%
-	Alive	88	9.16%	20	5.18%			108	8.01%
	Died in followup	33	3.43%	8	2.07%			41	3.04%
Alive	Alive	65	6.76%	29	7.51%			94	6.97%
Died in followup	Died in followup	1	0.10%					1	0.07%
<b>Grand Total</b>		<b>961</b>	<b>100.00%</b>	<b>386</b>	<b>100.00%</b>	<b>1</b>	<b>100.00%</b>	<b>1,348</b>	<b>100.00%</b>

## Participating Hospital Centres 2017

We are grateful to consultants from the following NHS Centres / trusts who returned data for these analyses:

Aberdeen Royal Infirmary  
Addenbrooke's Hospital, Cambridge  
Aintree University Hospital, Liverpool  
Airedale Hospital  
Alexandra Hospital, Redditch  
Arrowe Park Hospital, Wirral  
Barking, Havering & Redbridge University Hospital  
Basildon University Hospital, Essex  
Basingstoke and North Hampshire Hospital  
Bedford Hospital  
Blackpool Victoria Hospital  
Bradford Royal Infirmary  
Broomfield Hospital, Chelmsford  
Castle Hill Hospital, Hull  
Charing Cross Hospital, London  
Chelsea & Westminster Hospital, London  
Cheltenham General Hospital  
Chesterfield Royal Hospital  
Christie Hospital  
Churchill Hospital, Oxford  
City Hospital Birmingham  
Colchester General Hospital  
Countess of Chester Hospital

Cumberland Infirmary, Carlisle  
Darent Valley Hospital, Kent  
Derriford Hospital, Plymouth  
Diana, Princess of Wales Hospital, Grimsby  
Doncaster Royal Infirmary  
Dorset County Hospital, Dorchester  
East Surrey Hospital, Redhill  
Eastbourne District General Hospital  
Epsom General Hospital, Surrey  
Forth Valley Royal Hospital, Larbert  
Freeman Hospital, Newcastle  
Frimley Park Hospital  
George Eliot Hospital, Nuneaton  
Guy's & Thomas's Hospital  
Heartlands Hospital, Birmingham  
Hereford County Hospital  
Ipswich Hospital, Suffolk  
James Cook University Hospital, Middlesbrough  
Kent & Canterbury Hospital  
Kettering General Hospital  
King's College Hospital, London  
King's Mill Hospital, Nottinghamshire  
Kingston Hospital, London  
Leicester General Hospital

Lincoln County Hospital  
Lister Hospital, Stevenage  
Luton & Dunstable University Hospital  
Maidstone Hospital  
Manchester Royal Infirmary  
Medway Maritime Hospital, Gillingham  
Milton Keynes Hospital  
Monklands District General Hospital, Airdrie  
Morrison Hospital, Swansea  
Musgrove Park Hospital, Taunton  
New Cross Hospital, Wolverhampton  
Ninewells Hospital, Dundee  
Norfolk & Norwich University Hospital  
North Manchester General Hospital  
North Middlesex Hospital, London  
Northampton General Hospital  
Northwick Park Hospital  
Nottingham City Hospital  
Pinderfields General Hospital, Wakefield  
Princess Alexandra Hospital, Harlow  
Princess Elizabeth Hospital, Guernsey  
Princess Royal Hospital, Haywards Heath  
Queen Alexandra Hospital, Portsmouth  
Queen Elizabeth Hospital, Birmingham

Queen Elizabeth University Hospital  
Rotherham Hospital  
Royal Blackburn Hospital  
Royal Alexandra Hospital, Paisley  
Royal Berkshire Hospital, Reading  
Royal Bournemouth General Hospital  
Royal Cornwall Hospital, Truro  
Royal Derby Hospital  
Royal Devon & Exeter Hospital  
Royal Free Hospital, London  
Royal Glamorgan Hospital  
Royal Hallamshire Hospital, Sheffield  
Royal Hampshire County Hospital, Winchester  
Royal Liverpool University Hospital  
Royal Marsden Hospital, London  
Royal Preston Hospital  
Royal Shrewsbury Hospital  
Royal Stoke University Hospital  
Royal Sussex County Hospital, Brighton

Russells Hall Hospital, Dudley  
Salford Royal Hospital  
Salisbury District Hospital  
Sandwell District General Hospital, West  
Bromwich  
Scarborough General Hospital  
Scunthorpe General Hospital  
Southampton General Hospital  
Southend Hospital  
Southmead Hospital, Bristol  
St George's Hospital, London  
St James's Hospital, Dublin  
St James's University Hospital, Leeds  
St Mary's Hospital, London  
St Peter's Hospital, Chertsey  
St Richard's Hospital, Chichester  
Stepping Hill Hospital, Stockport  
Sunderland Royal Hospital  
The Great Western Hospital, Swindon  
The Queen Elizabeth Hospital, King's Lynn

Torbay Hospital, Torquay  
University College Hospital, London  
University Hospital of North Tees, Stockton-on-  
Tees  
University Hospital of Wales, Cardiff  
University Hospital, Ayr  
Walsall Manor Hospital  
Walsgrave Hospital, Coventry  
Warrington District General Hospital  
Watford General Hospital  
Western General Hospital, Edinburgh  
Whiston Hospital, Prescot  
Withington Community Hospital, Manchester  
Worthing Hospital  
Wrexham Maelor Hospital  
Wycombe Hospital, High Wycombe  
Wythenshawe Hospital, Manchester  
York Hospital