

**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> 2016**

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## AUDIT RESULTS SUMMARY – Nephrectomy dataset (2016 data)

All the data presented here are a summary of the data extracted from the web-based database on 4<sup>th</sup> August 2016 and relate to operations performed during the whole of 2016. Once extracted the data was transferred to an Access<sup>TM</sup> database for validation before being imported into Tableau<sup>TM</sup> for generation of the analyses. The validation mainly comprised checks for duplicate and / or empty entries and invalid / inappropriate dates.

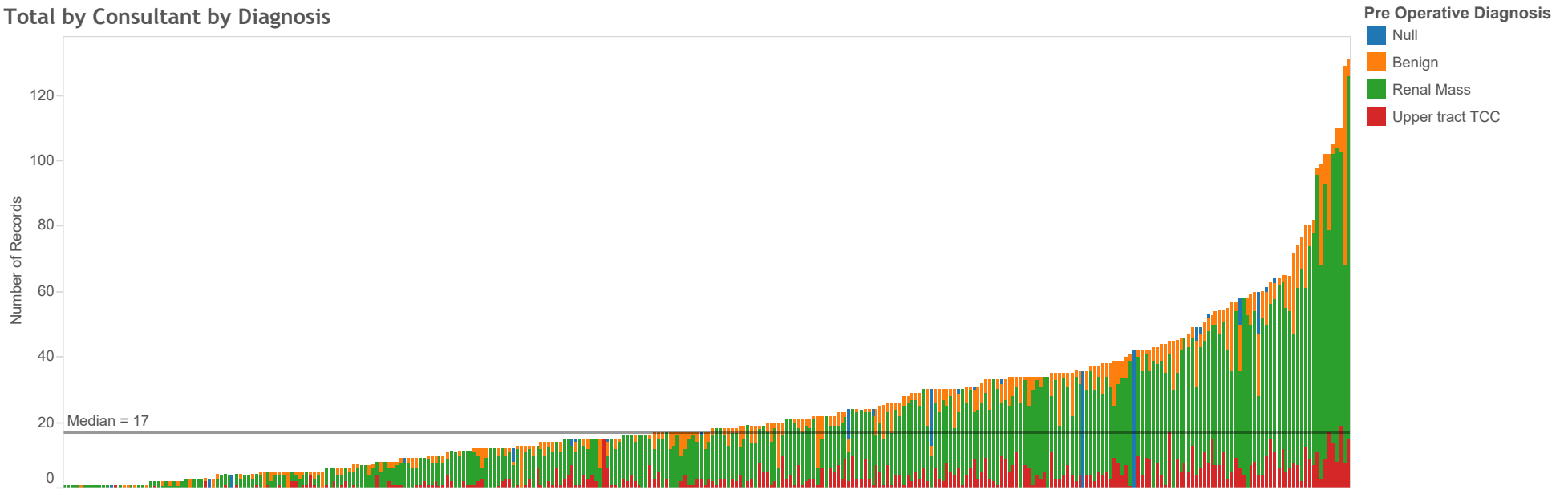
The data collection period was from 1 January 2016 to 31 December 2016.

- 8,052 procedures were recorded from 330 consultants at 134 NHS centres in the UK, including 317 private patients from 80 consultants. (England only for 2016 was 7,569)
- Median number of cases per consultant: 17 (range 1 – 131)
- Median number of cases per centre: 39 (range 1 - 315)
- 828 cases (10.3%) were bulk uploaded from other systems with the remaining data being entered on an individual patient basis.
- Hospital Episode Statistics (HES) for 2016 indicate that there were 8,128 nephrectomies undertaken by urologists in 2015. Therefore, we captured data on 93% of the nephrectomies undertaken by urologists in England during 2016.

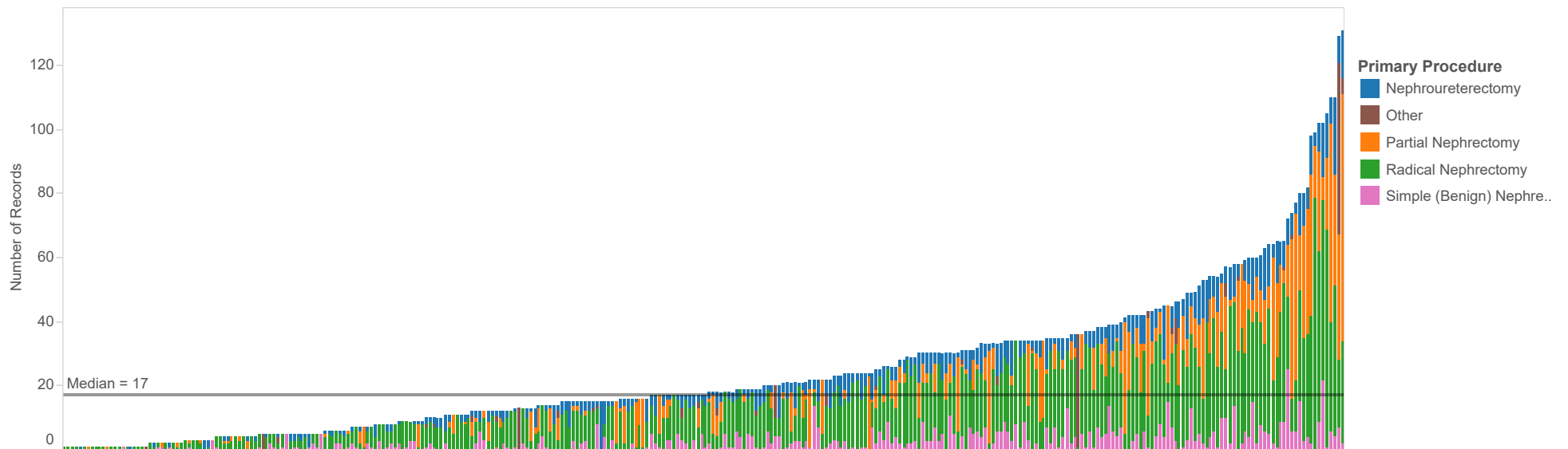
# Total Returns for Procedures Performed Between 01/01/2016 and 31/12/2016

8,052 procedures from 330 Consultants from 134 NHS Centres in the UK - including 317 private cases from 80 consultants

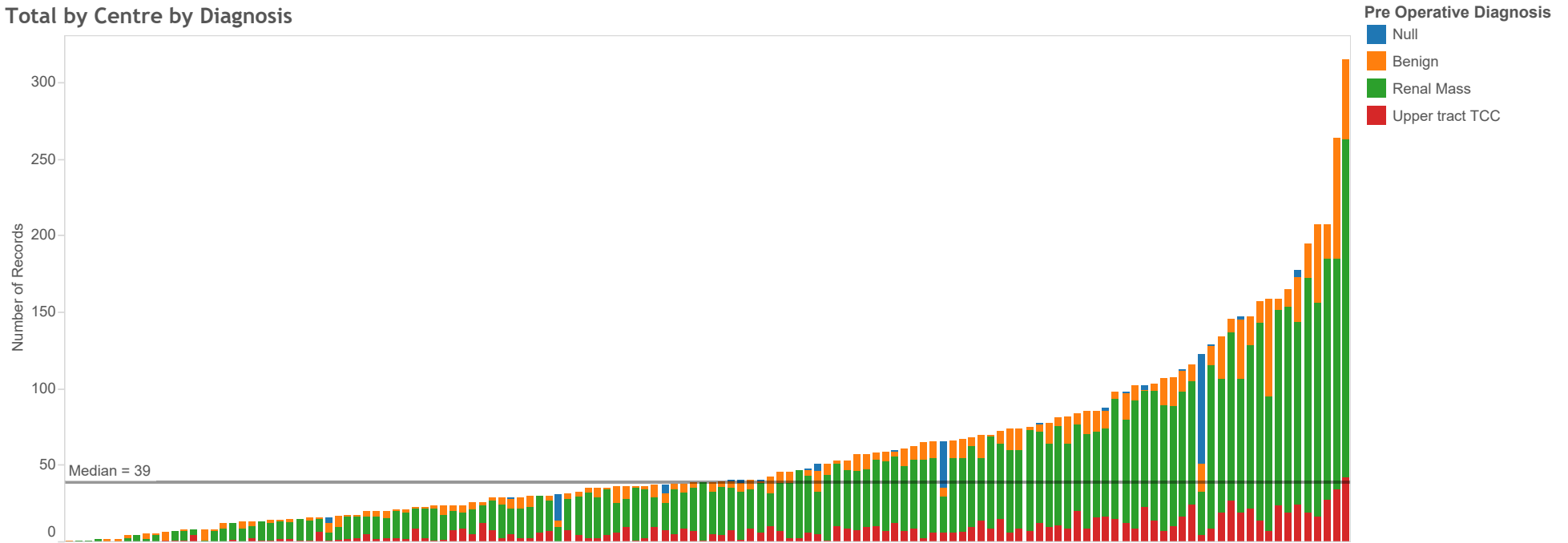
Total by Consultant by Diagnosis



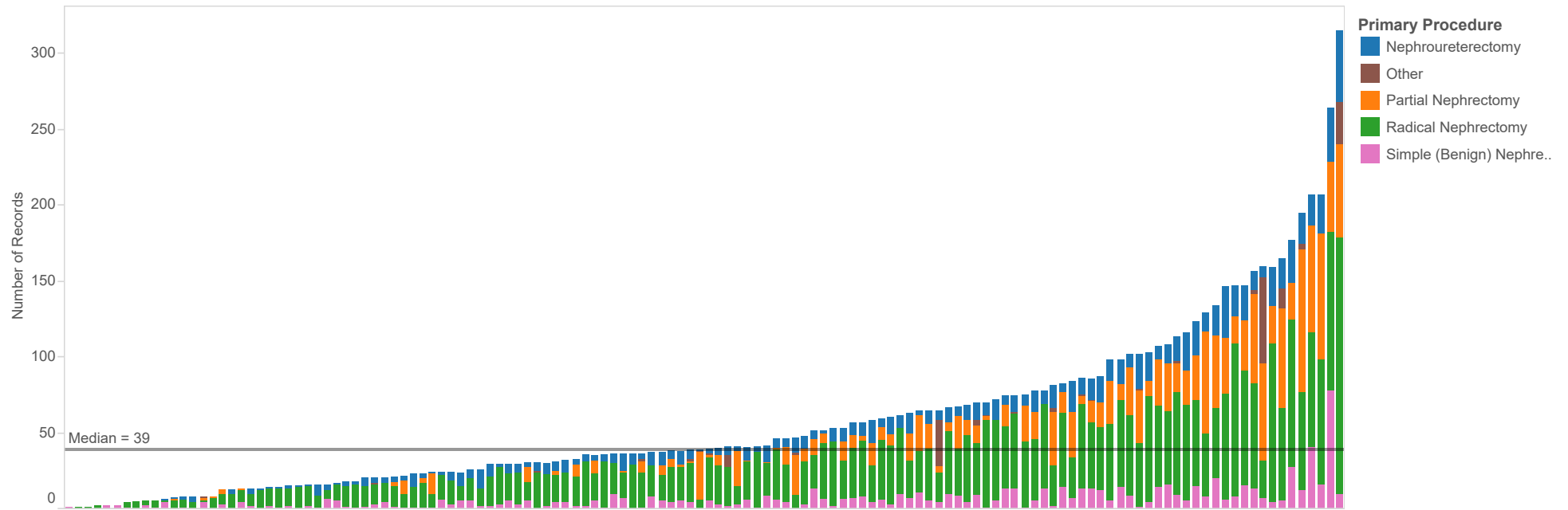
Total by Consultant by Procedure



Total by Centre by Diagnosis



Total by Centre by Procedure



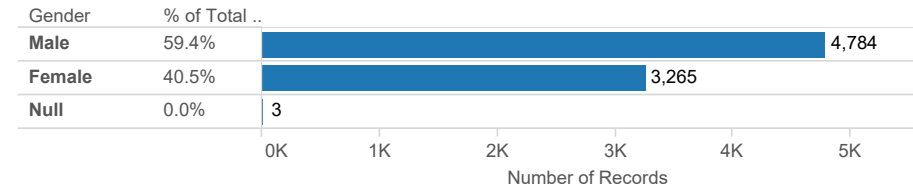
### Pre-op Presentation

Pre Op Presentation	N	% of Total Number of Recor..
Haematuria	1,956	24.3%
Incidental	3,511	43.6%
Other	1,831	22.7%
Null	754	9.4%
<b>Grand Total</b>	<b>8,052</b>	<b>100.0%</b>

### Age

Agegroup	% of Total Number of Recor..	N
41-50	12.05%	970
51-60	20.62%	1,660
61-70	29.28%	2,358
71-80	23.83%	1,919
<=40	8.00%	644
>80	6.22%	501
<b>Grand Total</b>	<b>100.00%</b>	<b>8,052</b>

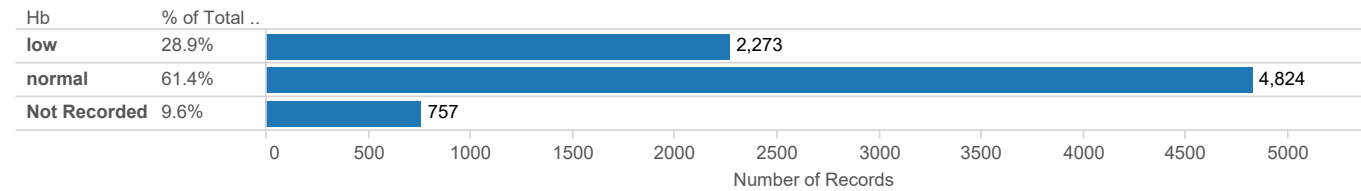
### Gender



### WHO Performance Status

Who Performance Status	N	% of Total Number of Recor..
0	4,212	52.31%
1	2,438	30.28%
2	643	7.99%
3	79	0.98%
4	12	0.15%
Null	668	8.30%
<b>Grand Total</b>	<b>8,052</b>	<b>100.00%</b>

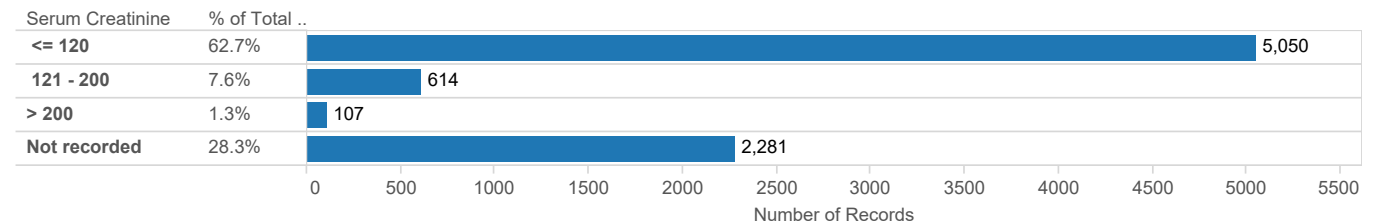
### Hb at Operation



### eGFR

Egfr Normal	N	% of Total Number of Recor..
Null	8,052	100.00%
<b>Grand Total</b>	<b>8,052</b>	<b>100.00%</b>

### Serum Creatinine



## Diagnosis

Pre Operative Diagnosis (group)	N	% of Total Number of Recor..
Benign	1,146	14.23%
Renal Mass	5,683	70.58%
Upper tract TCC	1,066	13.24%
Not recorded	157	1.95%
<b>Grand Total</b>	<b>8,052</b>	<b>100.00%</b>

## Non-Malignant Diagnosis

Non Malignant Diagnosis	N	% of Total Number of Recor..
Being performed as a donor	156	13.61%
Non-functioning kidney	555	48.43%
Polycystic	20	1.75%
Pyelonephritis	42	3.66%
Stone disease	134	11.69%
Xanthogranulomatous pyelonephritis	34	2.97%
Other	106	9.25%
Oncocytoma	11	0.96%
Null	88	7.68%
<b>Grand Total</b>	<b>1,146</b>	<b>100.00%</b>

## Post-Op Final Histological Diagnosis

PostOp Final Histological Diagnosis	N	% of Total Number of Recor..
Clear cell renal cell ca	3,776	46.90%
TCC	921	11.44%
Chromophobe	265	3.29%
Collecting duct	15	0.19%
Papillary	505	6.27%
Other Cancer	98	1.22%
Angiomyolipoma	65	0.81%
Oncocytoma	320	3.97%
Sarcoma	26	0.32%
Other benign	963	11.96%
Not recorded	1,098	13.64%
<b>Grand Total</b>	<b>8,052</b>	<b>100.00%</b>

### Tstage

Tstage (group)	N	% of Total Number of Recor..
1	3,408	49.35%
2	924	13.38%
3	1,809	26.19%
4	134	1.94%
a	319	4.62%
is	14	0.20%
Not recorded / Unknown	298	4.32%
<b>Grand Total</b>	<b>6,906</b>	<b>100.00%</b>

### Nstage

Nstage	N	% of Total Number of Recor..
0	5,421	78.50%
1	163	2.36%
2	99	1.43%
3	1	0.01%
X	470	6.81%
Null	752	10.89%
<b>Grand Total</b>	<b>6,906</b>	<b>100.00%</b>

### Mstage

Mstage	N	% of Total Number of Recor..
0	4,152	60.12%
1	280	4.05%
X	1,597	23.12%
Null	877	12.70%
<b>Grand Total</b>	<b>6,906</b>	<b>100.00%</b>

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

### Grade of Operating Surgeon

Grade Of Main Operator	% of Total Number of ..	Number of Records
Consultant	85.6%	6,894
SpR	7.1%	571
Other	0.5%	37
Null	6.8%	550
<b>Grand Total</b>		<b>8,052</b>

### Procedure by Technique

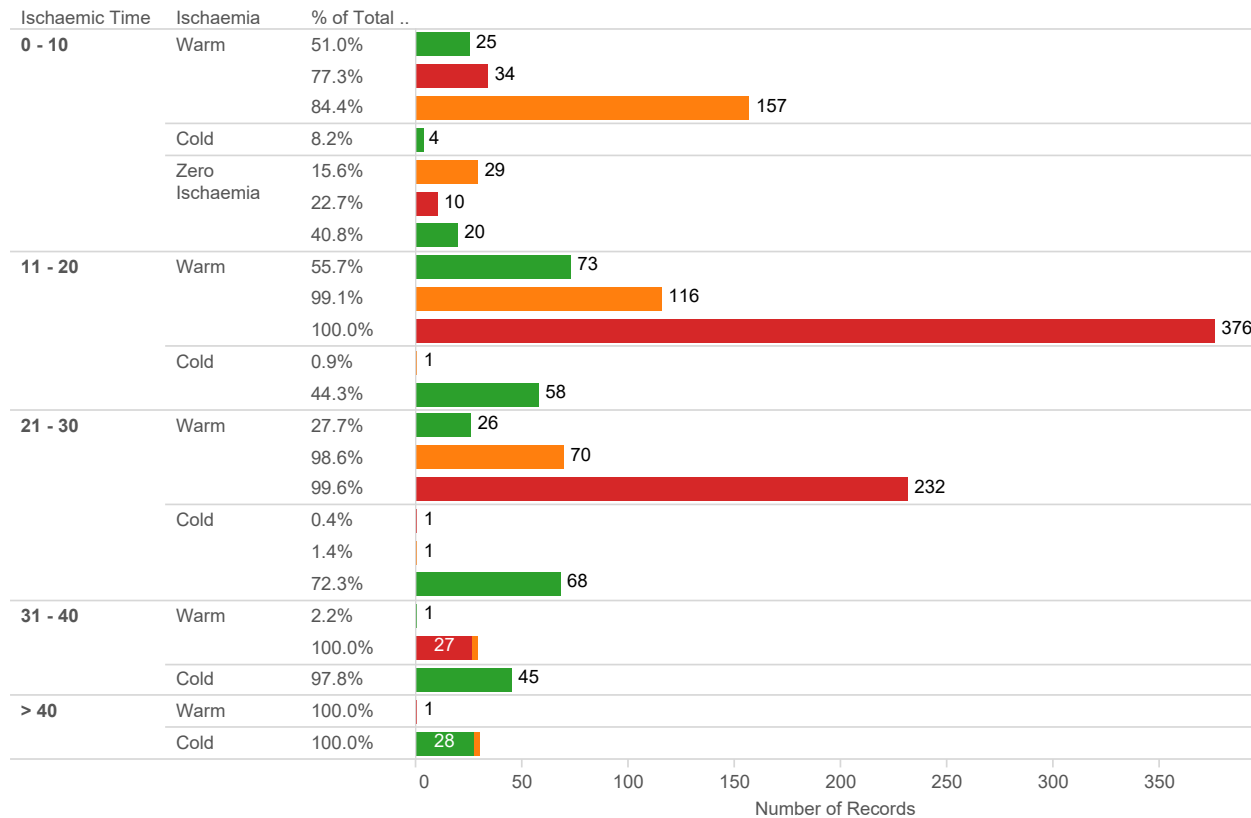
Primary Proc..	Open		Laparoscopic		Robotic		Not recorded		Grand Total	
	N	%	N	%	N	%	N	%	N	%
Radical Nep..	991	23.60%	3,007	71.60%	143	3.40%	59	1.40%	4,200	100.00%
Partial Nephr..	510	30.18%	341	20.18%	807	47.75%	32	1.89%	1,690	100.00%
Nephrourete..	101	8.74%	953	82.44%	74	6.40%	28	2.42%	1,156	100.00%
Other	16	9.36%	119	69.59%			36	21.05%	171	100.00%
Simple (Beni..	114	13.65%	696	83.35%	14	1.68%	11	1.32%	835	100.00%
<b>Grand Total</b>	<b>1,732</b>	<b>21.51%</b>	<b>5,116</b>	<b>63.54%</b>	<b>1,038</b>	<b>12.89%</b>	<b>166</b>	<b>2.06%</b>	<b>8,052</b>	<b>100.00%</b>



## Indication for Partial Nephrectomies

Partial Indica..	Technique (group)									
	Open		Laparoscopic		Robotic		Not recorded		Grand Total	
	N	%	N	%	N	%	N	%	N	%
<b>Absolute</b>	72	69.23%	9	8.65%	23	22.12%			104	100.00%
<b>Elective</b>	243	22.07%	251	22.80%	606	55.04%	1	0.09%	1,101	100.00%
<b>Relative</b>	72	46.75%	18	11.69%	64	41.56%			154	100.00%
<b>Not recorded</b>	123	37.16%	63	19.03%	114	34.44%	31	9.37%	331	100.00%
<b>Grand Total</b>	510	30.18%	341	20.18%	807	47.75%	32	1.89%	1,690	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	%	N	%	N	%	N	%	N	%	N	%
<=4	Open	52	16.40%	235	74.13%	26	8.20%	4	1.26%			317	100.00%
	Laparoscopic	588	46.59%	223	17.67%	446	35.34%	5	0.40%			1,262	100.00%
	Robotic	25	4.59%	494	90.64%	26	4.77%					545	100.00%
>4 - 7	Open	151	53.55%	108	38.30%	22	7.80%	1	0.35%			282	100.00%
	Laparoscopic	1,040	84.97%	21	1.72%	161	13.15%			2	0.16%	1,224	100.00%
	Robotic	54	37.76%	81	56.64%	8	5.59%					143	100.00%
>7 - 10	Open	213	90.64%	17	7.23%	5	2.13%					235	100.00%
	Laparoscopic	541	93.92%	1	0.17%	33	5.73%	1	0.17%			576	100.00%
	Robotic	19	73.08%	6	23.08%	1	3.85%					26	100.00%
>10	Open	367	94.83%	10	2.58%	7	1.81%	3	0.78%			387	100.00%
	Laparoscopic	225	93.36%	3	1.24%	12	4.98%	1	0.41%			241	100.00%
	Robotic	7	38.89%	10	55.56%	1	5.56%					18	100.00%
Not Recorded	Open	208	40.70%	140	27.40%	41	8.02%	8	1.57%	114	22.31%	511	100.00%
	Not recorded	59	35.54%	32	19.28%	28	16.87%	36	21.69%	11	6.63%	166	100.00%
	Laparoscopic	613	33.81%	93	5.13%	301	16.60%	112	6.18%	694	38.28%	1,813	100.00%
	Robotic	38	12.42%	216	70.59%	38	12.42%			14	4.58%	306	100.00%
<b>Grand Total</b>		4,200	52.16%	1,690	20.99%	1,156	14.36%	171	2.12%	835	10.37%	8,052	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	%	N	%	N	%	N	%	N	%	N	%
< 60 mins	Open	9	52.94%	6	35.29%					2	11.76%	17	100.00%
	Laparoscopic	99	66.89%	7	4.73%	5	3.38%	1	0.68%	36	24.32%	148	100.00%
	Robotic			10	100.00%							10	100.00%
1 - 2 hours	Open	180	48.39%	152	40.86%	7	1.88%	1	0.27%	32	8.60%	372	100.00%
	Laparoscopic	970	67.13%	115	7.96%	105	7.27%	13	0.90%	242	16.75%	1,445	100.00%
	Robotic	31	13.30%	196	84.12%	2	0.86%			4	1.72%	233	100.00%
> 2 - 3 hours	Open	336	55.17%	194	31.86%	33	5.42%	7	1.15%	39	6.40%	609	100.00%
	Laparoscopic	1,148	59.98%	142	7.42%	325	16.98%	68	3.55%	231	12.07%	1,914	100.00%
	Robotic	61	13.56%	358	79.56%	27	6.00%			4	0.89%	450	100.00%
> 3 - 4 hours	Open	181	63.73%	56	19.72%	25	8.80%	1	0.35%	21	7.39%	284	100.00%
	Laparoscopic	386	50.52%	26	3.40%	255	33.38%	17	2.23%	80	10.47%	764	100.00%
	Robotic	19	12.75%	111	74.50%	18	12.08%			1	0.67%	149	100.00%
> 4 - 6 hours	Open	90	74.38%	11	9.09%	12	9.92%	1	0.83%	7	5.79%	121	100.00%
	Laparoscopic	96	38.10%	7	2.78%	120	47.62%	3	1.19%	26	10.32%	252	100.00%
	Robotic	6	13.95%	30	69.77%	7	16.28%					43	100.00%
> 6 hours	Open	16	69.57%	1	4.35%	2	8.70%	2	8.70%	2	8.70%	23	100.00%
	Laparoscopic	8	36.36%			11	50.00%			3	13.64%	22	100.00%
	Robotic					1	100.00%					1	100.00%
<b>Grand Total</b>		3,636	53.03%	1,422	20.74%	955	13.93%	114	1.66%	730	10.65%	6,857	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	%	N	%	N	%	N	%	N	%	N	%
< 500	Open	491	50.10%	356	36.33%	51	5.20%	6	0.61%	76	7.76%	980	100.00%
	Laparoscopic	2,587	59.09%	290	6.62%	792	18.09%	76	1.74%	633	14.46%	4,378	100.00%
	Robotic	121	13.86%	683	78.24%	60	6.87%			9	1.03%	873	100.00%
> 500 - 1000	Open	152	66.67%	41	17.98%	18	7.89%	4	1.75%	13	5.70%	228	100.00%
	Laparoscopic	96	59.63%	17	10.56%	36	22.36%	1	0.62%	11	6.83%	161	100.00%
	Robotic	3	7.89%	34	89.47%	1	2.63%					38	100.00%
> 1000 - 2000	Open	92	71.88%	20	15.63%	6	4.69%	1	0.78%	9	7.03%	128	100.00%
	Laparoscopic	25	54.35%	3	6.52%	12	26.09%			6	13.04%	46	100.00%
	Robotic	2	9.52%	18	85.71%	1	4.76%					21	100.00%
> 2000 - 5000	Open	55	80.88%	5	7.35%	6	8.82%			2	2.94%	68	100.00%
	Laparoscopic	9	75.00%	1	8.33%					2	16.67%	12	100.00%
	Robotic			2	100.00%							2	100.00%
> 5000	Open	8	88.89%					1	11.11%			9	100.00%
	Laparoscopic	1	100.00%									1	100.00%
<b>Grand Total</b>		3,642	52.44%	1,470	21.17%	983	14.15%	89	1.28%	761	10.96%	6,945	100.00%

### Transfusion Rate

Blood Transfused	N	% of Total Number of Recor..
Not transfused	7,143	95.06%
Transfused	371	4.94%
<b>Grand Total</b>	7,514	100.00%

### Transfusions by Procedure & Technique

		Primary Procedure											
Blood Transf..	Technique (g..	Radical Nephrectomy		Partial Nephrectomy		Nephroureterectomy		Other		Simple (Benign) Nephrectomy		Grand Total	
		N	%	N	%	N	%	N	%	N	%	N	%
<b>Transfused</b>	Open	190	80.51%	20	8.47%	10	4.24%	3	1.27%	13	5.51%	236	100.00%
	Laparoscopic	65	54.62%	10	8.40%	30	25.21%			14	11.76%	119	100.00%
	Robotic	3	18.75%	13	81.25%							16	100.00%
<b>Not transfused</b>	Open	723	52.66%	459	33.43%	83	6.05%	9	0.66%	99	7.21%	1,373	100.00%
	Laparoscopic	2,826	59.27%	303	6.35%	879	18.44%	86	1.80%	674	14.14%	4,768	100.00%
	Robotic	137	13.67%	779	77.74%	72	7.19%			14	1.40%	1,002	100.00%
<b>Grand Total</b>		3,944	52.49%	1,584	21.08%	1,074	14.29%	98	1.30%	814	10.83%	7,514	100.00%

### Clavien Dindo Grade III plus Complication Rate

Grade3Plus (group)	N	% of Total Number of Recor..
Grade III plus	171	2.30%
No	7,255	97.70%
<b>Grand Total</b>	<b>7,426</b>	<b>100.00%</b>

### Clavien Dindo Grades by procedure & Technique

Clavien Dind..	Primary Procedure	Technique (group)						Grand Total	
		Open		Laparoscopic		Robotic		N	%
		N	%	N	%	N	%		
<b>Grade IIIa</b>	Radical Nephrectomy	10	43.48%	13	56.52%			23	100.00%
	Partial Nephrectomy	5	20.00%	7	28.00%	13	52.00%	25	100.00%
	Nephroureterectomy			10	100.00%			10	100.00%
	Simple (Benign) Nephrectomy	5	45.45%	6	54.55%			11	100.00%
	<b>Total</b>		20	28.99%	36	52.17%	13	18.84%	69
<b>Grade IIIb</b>	Radical Nephrectomy	9	40.91%	13	59.09%			22	100.00%
	Partial Nephrectomy	5	33.33%	7	46.67%	3	20.00%	15	100.00%
	Nephroureterectomy	1	11.11%	7	77.78%	1	11.11%	9	100.00%
	Other			1	100.00%			1	100.00%
	Simple (Benign) Nephrectomy	2	22.22%	7	77.78%			9	100.00%
<b>Total</b>		17	30.36%	35	62.50%	4	7.14%	56	100.00%
<b>Grade IVa</b>	Radical Nephrectomy	7	41.18%	9	52.94%	1	5.88%	17	100.00%
	Partial Nephrectomy	1	33.33%			2	66.67%	3	100.00%
	Nephroureterectomy			3	100.00%			3	100.00%
	Other			1	100.00%			1	100.00%
	Simple (Benign) Nephrectomy	1	33.33%	2	66.67%			3	100.00%
<b>Total</b>		9	33.33%	15	55.56%	3	11.11%	27	100.00%
<b>Grade IVb</b>	Radical Nephrectomy	1	33.33%	2	66.67%			3	100.00%
	Nephroureterectomy	1	50.00%	1	50.00%			2	100.00%
	<b>Total</b>		2	40.00%	3	60.00%			5
<b>Grade V</b>	Radical Nephrectomy	1	50.00%	1	50.00%			2	100.00%
	Partial Nephrectomy	1	100.00%					1	100.00%
	Nephroureterectomy			7	100.00%			7	100.00%
	Simple (Benign) Nephrectomy	4	100.00%					4	100.00%
<b>Total</b>		6	42.86%	8	57.14%			14	100.00%
<b>Grand Total</b>		54	31.58%	97	56.73%	20	11.70%	171	100.00%

## Conversions

### Primary Procedure

If Minimally Invasive Approach W..	Conversion Reason	Radical Nephrectomy		Partial Nephrectomy		Nephroureterectomy		Other		Simple (Benign) Nephrectomy		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 ..	N	% of Total Number of Records ..
<b>Yes</b>	Adhesions	10	0.37%	1	0.32%	5	0.60%			6	0.94%	22	0.48%
	Bowel perforation					1	0.12%					1	0.02%
	Difficult dissection	19	0.70%	5	1.59%	9	1.07%			6	0.94%	39	0.84%
	Failure to progress	13	0.48%			3	0.36%			10	1.57%	26	0.56%
	Haemorrhage	30	1.10%	2	0.64%	5	0.60%			3	0.47%	40	0.86%
	Patient obesity	3	0.11%	1	0.32%			1	0.93%			5	0.11%
	Size of tumour / mass	15	0.55%	1	0.32%	1	0.12%					17	0.37%
	Other	10	0.37%			4	0.48%					14	0.30%
	N/A	2	0.07%									2	0.04%
	<b>Total</b>	102	3.74%	10	3.18%	28	3.34%	1	0.93%	25	3.92%	166	3.59%
<b>No</b>	N/A	2,625	96.26%	304	96.82%	810	96.66%	107	99.07%	613	96.08%	4,459	96.41%
	<b>Total</b>	2,625	96.26%	304	96.82%	810	96.66%	107	99.07%	613	96.08%	4,459	96.41%
<b>Grand Total</b>		2,727	100.00%	314	100.00%	838	100.00%	108	100.00%	638	100.00%	4,625	100.00%

## Intra-operative Complications

Intraoperativ..	Primary Proc..	Technique (group)							
		Open		Laparoscopic		Robotic		Grand Total	
		N	%	N	%	N	%	N	%
<b>Yes</b>	Radical Neph..	84	43.52%	103	53.37%	6	3.11%	193	100.00%
	Partial Neph..	22	43.14%	7	13.73%	22	43.14%	51	100.00%
	Nephroureter..	5	12.82%	32	82.05%	2	5.13%	39	100.00%
	Simple (Benig..	11	35.48%	20	64.52%			31	100.00%
	Other	1	20.00%	4	80.00%			5	100.00%
	<b>Total</b>		123	38.56%	166	52.04%	30	9.40%	319
<b>No</b>	Radical Neph..	806	22.02%	2,725	74.45%	129	3.52%	3,660	100.00%
	Partial Neph..	433	29.14%	318	21.40%	735	49.46%	1,486	100.00%
	Nephroureter..	83	8.27%	854	85.06%	67	6.67%	1,004	100.00%
	Simple (Benig..	101	13.22%	649	84.95%	14	1.83%	764	100.00%
	Other	13	10.57%	110	89.43%			123	100.00%
	<b>Total</b>		1,436	20.41%	4,656	66.16%	945	13.43%	7,037
<b>Not recorded</b>	Radical Neph..	101	29.11%	179	51.59%	8	2.31%	347	100.00%
	Partial Neph..	55	35.95%	16	10.46%	50	32.68%	153	100.00%
	Nephroureter..	13	11.50%	67	59.29%	5	4.42%	113	100.00%
	Simple (Benig..	2	5.00%	27	67.50%			40	100.00%
	Other	2	4.65%	5	11.63%			43	100.00%
	<b>Total</b>		173	24.86%	294	42.24%	63	9.05%	696
<b>Grand Total</b>		1,732	21.51%	5,116	63.54%	1,038	12.89%	8,052	100.00%

## Specific Intra-operative Complications

Primary Procedure	Specific Intraoperati..	Technique (group)			
		Open	Laparos..	Robotic	Grand T..
<b>Radical Nephrectomy</b>	Bleeding	40	61	1	102
	Bleeding,Bowel injury		1		1
	Bleeding,Liver injury	1	1		2
	Bleeding,Other	2	6		8
	Bleeding,Splenectomy	7			7
	Bowel injury	3	6		9
	Bowel injury,Other			1	1
	Liver injury	1	2		3
	Pneumothorax	2	9		11
	Splenectomy	17	2		19
	Other	8	14	4	26
Not recorded	3	1		4	
<b>Partial Nephrectomy</b>	Bleeding	9	3	12	24
	Bleeding,Other	1	1		2
	Bowel injury	1			1
	Liver injury			1	1
	Pneumothorax	8		1	9
	Splenectomy	1			1
	Other	2	3	8	13
	<b>Total</b>				
<b>Nephroureterectomy</b>	Bleeding		13	1	14
	Bleeding,Other		1		1
	Bowel injury		4		4
	Bowel injury,Other		1		1
	Splenectomy	1	1		2
	Other	4	12	1	17
<b>Other</b>	Bleeding	1	2		3
	Bowel injury		1		1
	Pneumothorax		1		1
<b>Simple (Benign) Nephrectomy</b>	Bleeding	4	11		15
	Bowel injury	2	3		5
	Pneumothorax	3	1		4
	Other	2	4		6
	Not recorded		1		1
<b>Grand Total</b>		123	166	30	319

## Post-operative Complications

Postoperative Complications	Primary Procedure	Technique (group)						Grand Total	
		Open		Laparoscopic		Robotic		N	%
		N	%	N	%	N	%		
<b>Yes</b>	Radical Nep..	120	27.33%	308	70.16%	11	2.51%	439	100.00%
	Partial Neph..	63	39.87%	41	25.95%	54	34.18%	158	100.00%
	Nephrouret..	21	12.43%	142	84.02%	6	3.55%	169	100.00%
	Simple (Ben..	21	28.38%	52	70.27%	1	1.35%	74	100.00%
	Other	2	33.33%	4	66.67%			6	100.00%
<b>No</b>	Radical Nep..	818	23.24%	2,572	73.07%	130	3.69%	3,520	100.00%
	Partial Neph..	402	30.52%	256	19.44%	659	50.04%	1,317	100.00%
	Nephrouret..	75	8.26%	767	84.47%	66	7.27%	908	100.00%
	Simple (Ben..	86	12.20%	606	85.96%	13	1.84%	705	100.00%
	Other	11	8.87%	113	91.13%			124	100.00%
<b>Not recorded</b>	Radical Nep..	53	21.99%	127	52.70%	2	0.83%	241	100.00%
	Partial Neph..	45	20.93%	44	20.47%	94	43.72%	215	100.00%
	Nephrouret..	5	6.33%	44	55.70%	2	2.53%	79	100.00%
	Simple (Ben..	7	12.50%	38	67.86%			56	100.00%
	Other	3	7.32%	2	4.88%			41	100.00%
<b>Grand Total</b>		1,732	21.51%	5,116	63.54%	1,038	12.89%	8,052	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	10	18	1		29
	Chest infection +/- Others	25	74	1		100
	Ileus +/- others	22	46	1		69
	Renal failure +/- others	3	14			17
	DVT / PE +/- others	4	2	1		7
	Problematic pain control +/- others	5	16	1		22
	Wound infection +/- others	16	44	1		61
	Other	33	93	4		130
	Not recorded	2	1	1		4
	<b>Partial Nephrectomy</b>	Bleeding / haemorrhage +/- Others	5	10	16	
Chest infection +/- Others		21	11	11		43
Ileus +/- others		5	1	2		8
Renal failure +/- others		3		2		5
DVT / PE +/- others		1	1	3		5
Problematic pain control +/- others		3	4	1		8
Wound infection +/- others		5	2	3		10
Other		18	11	15		44
Not recorded		2	1	1		4
<b>Nephroureterectomy</b>		Bleeding / haemorrhage +/- Others		14	1	
	Chest infection +/- Others	3	33			36
	Ileus +/- others	3	30	2		35
	Renal failure +/- others	4	4			8
	DVT / PE +/- others	1				1
	Problematic pain control +/- others	1	4			5
	Wound infection +/- others	2	16			18
	Other	7	39	3		49
	Not recorded		2			2
	<b>Other</b>	Chest infection +/- Others	1	1		
Other		1	2			3
Not recorded			1			1
<b>Simple (Benign) Nephrectomy</b>	Bleeding / haemorrhage +/- Others	1	5			6
	Chest infection +/- Others	5	8			13
	Ileus +/- others	6	4			10
	Renal failure +/- others	1				1
	DVT / PE +/- others			1		1
	Problematic pain control +/- others	1	1			2
	Wound infection +/- others	5	10			15
	Other	2	21			23
	Not recorded		3			3
	<b>Grand Total</b>		227	547	72	

## Length of Stay

Technique (group)	Primary Procedure	N	% of Total Number of Recor..	Median Length Of Stay	Min. Length Of Stay	Max. Length Of Stay
<b>Open</b>	Radical Nephrectomy	957	12.84%	6	0	65
	Partial Nephrectomy	482	6.47%	5	0	42
	Nephroureterectomy	99	1.33%	7	3	64
	Other	15	0.20%	7	1	11
	Simple (Benign) Nephrectomy	109	1.46%	6	0	59
	<b>Total</b>	<b>1,662</b>	<b>22.30%</b>	<b>6</b>	<b>0</b>	<b>65</b>
<b>Laparoscopic</b>	Radical Nephrectomy	2,884	38.70%	3	0	85
	Partial Nephrectomy	309	4.15%	3	0	19
	Nephroureterectomy	916	12.29%	5	0	99
	Other	94	1.26%	3	1	11
	Simple (Benign) Nephrectomy	657	8.82%	3	0	77
	<b>Total</b>	<b>4,860</b>	<b>65.21%</b>	<b>3</b>	<b>0</b>	<b>99</b>
<b>Robotic</b>	Radical Nephrectomy	138	1.85%	3	1	34
	Partial Nephrectomy	707	9.49%	2	0	34
	Nephroureterectomy	72	0.97%	4	1	40
	Simple (Benign) Nephrectomy	14	0.19%	3	1	7
	<b>Total</b>	<b>931</b>	<b>12.49%</b>	<b>2</b>	<b>0</b>	<b>40</b>
<b>Grand Total</b>	<b>7,453</b>	<b>100.00%</b>	<b>4</b>	<b>0</b>	<b>99</b>	

## Nuclear Grade of Parenchymal Tumours

Nuclear grade	Margins1						Grand Total	
	Positive		Negative		Not recorded		N	%
	N	%	N	%	N	%		
<b>G1</b>	7	3.33%	98	46.67%	105	50.00%	210	100.00%
<b>G2</b>	27	1.98%	407	29.90%	927	68.11%	1,361	100.00%
<b>G3</b>	26	1.75%	272	18.30%	1,188	79.95%	1,486	100.00%
<b>G4</b>	3	0.61%	43	8.74%	446	90.65%	492	100.00%
<b>Not recorded</b>	27	4.46%	238	39.34%	340	56.20%	605	100.00%
<b>Grand Total</b>	90	2.17%	1,058	25.47%	3,006	72.36%	4,154	100.00%

## Grade of Urothelial Tumours

Urothelial Tumour Grade	N	% of Total Number of Recor..
<b>G1</b>	31.0	3.37%
<b>G2</b>	293.0	31.81%
<b>G3</b>	500.0	54.29%
<b>Not recorded</b>	97.0	10.53%
<b>Grand Total</b>	921.0	100.00%



## Late Complications

Fulatecomplicati..	N	% of Total Number of Recor..
None	1,158	84.34%
Other	23	1.68%
Renal impairment	20	1.46%
Wound	16	1.17%
Wound hernia	4	0.29%
Wound pain	15	1.09%
Not recorded	137	9.98%
<b>Grand Total</b>	<b>1,373</b>	<b>100.00%</b>

## Follow-Up

### Adjuvant management

Fuadjuvantmanagement	N	% of Total Number of Recor..
None	580	42.21%
Clinical trial	16	1.16%
Immunotherapy	5	0.36%
Observation	584	42.50%
TKI's	30	2.18%
Other	23	1.67%
Not recorded	136	9.90%
<b>Grand Total</b>	<b>1,374</b>	<b>100.00%</b>

## Status at most recent follow-up

Fustatus	Fupatientstatus	Time to Follow -up				Grand Total	
		<= 6 months		> 6 months		N	% of Total Number of Records ..
		N	% of Total Number of Records ..	N	% of Total Number of Records ..		
Alive with no evidence of renal cancer	Alive	711	72.33%	294	75.19%	1,005	73.14%
Alive with local recurrence of renal cancer	Alive	7	0.71%	2	0.51%	9	0.66%
Alive with lymph node involvement by renal cancer	Alive	10	1.02%	7	1.79%	17	1.24%
Alive with metastatic disease	Alive	46	4.68%	20	5.12%	66	4.80%
Discharged to GP / Other consultant	Alive	85	8.65%	21	5.37%	106	7.71%
Not recorded	Alive	92	9.36%	37	9.46%	129	9.39%
	Died in followup	32	3.26%	10	2.56%	42	3.06%
<b>Grand Total</b>		<b>983</b>	<b>100.00%</b>	<b>391</b>	<b>100.00%</b>	<b>1,374</b>	<b>100.00%</b>

## Participating Hospital Centres 2016

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

Aberdeen Royal Infirmary	Chesterfield Royal Hospital	Harrogate District Hospital
Addenbrooke's Hospital, Cambridge	Christie Hospital	Heartlands Hospital, Birmingham
Aintree University Hospital, Liverpool	Churchill Hospital, Oxford	Hereford County Hospital
Airedale Hospital	City Hospital Birmingham	Huddersfield Royal Infirmary
Alexandra Hospital, Redditch	Colchester General Hospital	Ipswich Hospital, Suffolk
Altnagelvin Area Hospital, Londonderry	Countess of Chester Hospital	James Paget University Hospital, Great Yarmouth
Arrowe Park Hospital, Wirral	Craigavon Area Hospital, Portadown	Kent and Canterbury Hospital
Barking, Havering & Redbridge University Hospital	Cumberland Infirmary, Carlisle	Kettering General Hospital
Basildon University Hospital, Essex	Darent Valley Hospital, Kent	King's College Hospital, London
Basingstoke and North Hampshire Hospital	Derriford Hospital, Plymouth	King's Mill Hospital, Nottinghamshire
Beaumont Hospital, Dublin	Diana, Princess of Wales Hospital, Grimsby	Kingston Hospital, London
Bedford Hospital	Doncaster Royal Infirmary	Leicester General Hospital
Belfast City Hospital	Dorset County Hospital, Dorchester	Lincoln County Hospital
Blackpool Victoria Hospital	East Surrey Hospital, Redhill	Lister Hospital, Stevenage
Bradford Royal Infirmary	Eastbourne District General Hospital	Luton & Dunstable University Hospital
Broomfield Hospital, Chelmsford	Epsom General Hospital, Surrey	Maidstone Hospital
Burnley General Hospital	Forth Valley Royal Hospital, Larbert	Manchester Royal Infirmary
Castle Hill Hospital, Hull	Freeman Hospital, Newcastle	Medway Maritime Hospital, Gillingham
Causeway Hospital, Coleraine	Frimley Park Hospital	Milton Keynes Hospital
Charing Cross Hospital, London	Furness General Hospital, Barrow-in-Furness	Monklands District General Hospital, Airdrie
Charing Cross Hospital, London	Gartnavel General Hospital, Glasgow	Morrison Hospital, Swansea
Chelsea & Westminster Hospital, London	George Eliot Hospital, Nuneaton	Musgrove Park Hospital, Taunton
Cheltenham General Hospital	Guy's & Thomas's Hospital	New Cross Hospital, Wolverhampton
	Hammersmith Hospital, London	

Ninewells Hospital, Dundee  
Norfolk And Norwich University Hospital  
North Manchester General Hospital  
North Middlesex Hospital, London  
Northampton General Hospital  
Northern General Hospital, Sheffield  
Northwick Park Hospital  
Nottingham City Hospital  
Pinderfields General Hospital, Wakefield  
Princess Alexandra Hospital, Harlow  
Princess Elizabeth Hospital, Guernsey  
Princess Royal Hospital, Haywards Heath  
Private Patients General Centre  
Queen Alexandra Hospital, Portsmouth  
Queen Elizabeth Hospital, Birmingham  
Queen Elizabeth University Hospital  
Rotherham Hospital  
Royal Blackburn Hospital  
Royal Albert Edward Infirmary, Wigan  
Royal Alexandra Hospital, Paisley  
Royal Berkshire Hospital, Reading  
Royal Bolton Hospital  
Royal Bournemouth General Hospital  
Royal Cornwall Hospital, Truro  
Royal Derby Hospital  
Royal Devon and Exeter Hospital  
Royal Free Hospital, London  
Royal Glamorgan Hospital  
Royal Hallamshire Hospital, Sheffield

Royal Hampshire County Hospital  
Royal Lancaster Infirmary  
Royal Liverpool University Hospital  
Royal Marsden Hospital, London  
Royal Preston Hospital  
Royal Shrewsbury Hospital  
Royal Stoke University Hospital  
Royal Surrey County Hospital, Guildford  
Royal Sussex County Hospital, Brighton  
Royal United Hospital, Bath  
Russells Hall Hospital, Dudley  
Salford Royal Hospital  
Salisbury District Hospital  
Sandwell District General Hospital, West Bromwich  
Scarborough General Hospital  
Scunthorpe General Hospital  
South Tyneside District Hospital  
Southampton General Hospital  
Southend Hospital  
Southmead Hospital, Bristol  
Southport And Ormskirk Hospitals  
St Bartholomew's Hospital, London  
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 James Cook University Hospital, Middlesbrough  
The Queen Elizabeth Hospital, King's Lynn  
The Royal London Hospital  
The Royal Oldham Hospital  
Torbay Hospital, Torquay  
University College Hospital, London  
University Hospital of North Tees  
University Hospital of Wales, Cardiff  
University Hospital, Ayr  
Victoria Hospital, Kirkcaldy  
Walsall Manor Hospital  
Walsgrave Hospital, Coventry  
Warrington District General Hospital  
Watford General Hospital  
West Suffolk Hospital, Bury St. Edmunds  
Western General Hospital, Edinburgh  
Wexham Park Hospital, Slough  
Whipps Cross University Hospital, London  
Whiston Hospital, Prescot  
Withington Community Hospital, Manchester  
Worthing Hospital  
Wrexham Maelor Hospital  
Wycombe Hospital, High Wycombe  
Wythenshawe Hospital, Manchester  
York Hospital  
Ysbyty Gwynedd Hospital, Bangor