

**THE BRITISH ASSOCIATION OF
UROLOGICAL SURGEONS
SECTION of ONCOLOGY**

Analyses of Cystectomy Dataset

January 1st – 31st December 2013

June 2014

MEMBERS OF THE EXECUTIVE COMMITTEE

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PRODUCED FOR BAUS SECTION OF ONCOLOGY

by

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GENERAL INTRODUCTION

2013 was the first year that compulsory surgeon level outcome data was published in urology for nephrectomy. In actual fact the results, when published, attracted very little media scrutiny, perhaps because they showed that on the whole nephrectomy is performed well by UK urologists. It is worth noting however that the BAUS nephrectomy audit did not represent a complete picture of every nephrectomy performed in 2012 in the UK, based on HES figures BAUS estimates data on about 75% of nephrectomies undertaken in England were returned.

Turning to the prostatectomy and cystectomy data, a review of the 2013 data seems to suggest that the changes recommended by the IOG guidance are slowly changing the way urologists practice pelvic oncology. In 2012 2093 radical prostatectomies (RPs) were performed by 110 surgeons in 57 centres compared with 3695 RPs performed by 130 surgeons in 62 centres in 2013. Further analysis shows an encouraging increase in median RP per surgeon from 9 to 16 and per centre up from 19 to 38.

For radical cystectomy (RC) the data are less encouraging. The number of RCs reported increased from 743 performed by 74 surgeons in 45 centres to 1024 RCs performed by 105 surgeons in 57 centres. The median number of RCs per surgeon remains largely unchanged: 6 in 2012 and 7 in 2013. It could be argued that RC is increasingly performed by teams and to support this the number of RCs performed per centre has increased from 6 in 2012 to 13 in 2013. This upward trend is to be welcomed, although it still represents about 1 RC per month - well short of numbers that studies consistently show are needed to show improved outcomes.

The increasing dominance of robotic techniques is also evident; between 2012 and 2013 open RP fell from 21% to 13%, laparoscopic RP fell from 40% to 30% and robotic RP increased from 32% to 50%. Robotic techniques are also starting to take hold with RC; between 2012 and 2013 open RC fell from 75% to 60% whilst robotic RC increased from 7 to 15%.

As always, BAUS and the Section of Oncology are extremely grateful to Sarah Fowler, BAUS Data & Audit Manager, for her hard work in collecting and analysing the data. The quality of this work is reflected in the fact that much of the data will be used by NHS England to inform its quality dashboards to measure robust outcome data for pelvic oncology. We are always keen to encourage any urologists or trainees who wish to use the data for a research or audit project and finally we would encourage all urologists who perform these operations to routinely collect and submit their data.

As always your feedback as section members is invaluable – please feel free to contact Sarah or myself with your suggestions.

Hugh Mostafid

June 2014

AUDIT RESULTS SUMMARY - Cystectomy dataset (January 1st – December 31st 2013)

- 1024 Cystectomies reported by 105 consultants from 57 centres (including 3 private patients from 2 consultants)
 - 93% of the data (953/1024) was individually entered by hand as oppose to being bulk imported
 - 25% have 1 or more follow up recorded
 - Median per consultant = 6, range 1 – 60
 - Median per centre = 13, range 1 – 86
 - 78% males (783/1009 recorded) ; Median age at Operation 69, Range 26 - 87

How were the data analysed?

All the data presented here are a summary of the data extracted from the web-based database on 28th April 2014 and relate to operations performed during the whole of 2013. 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.

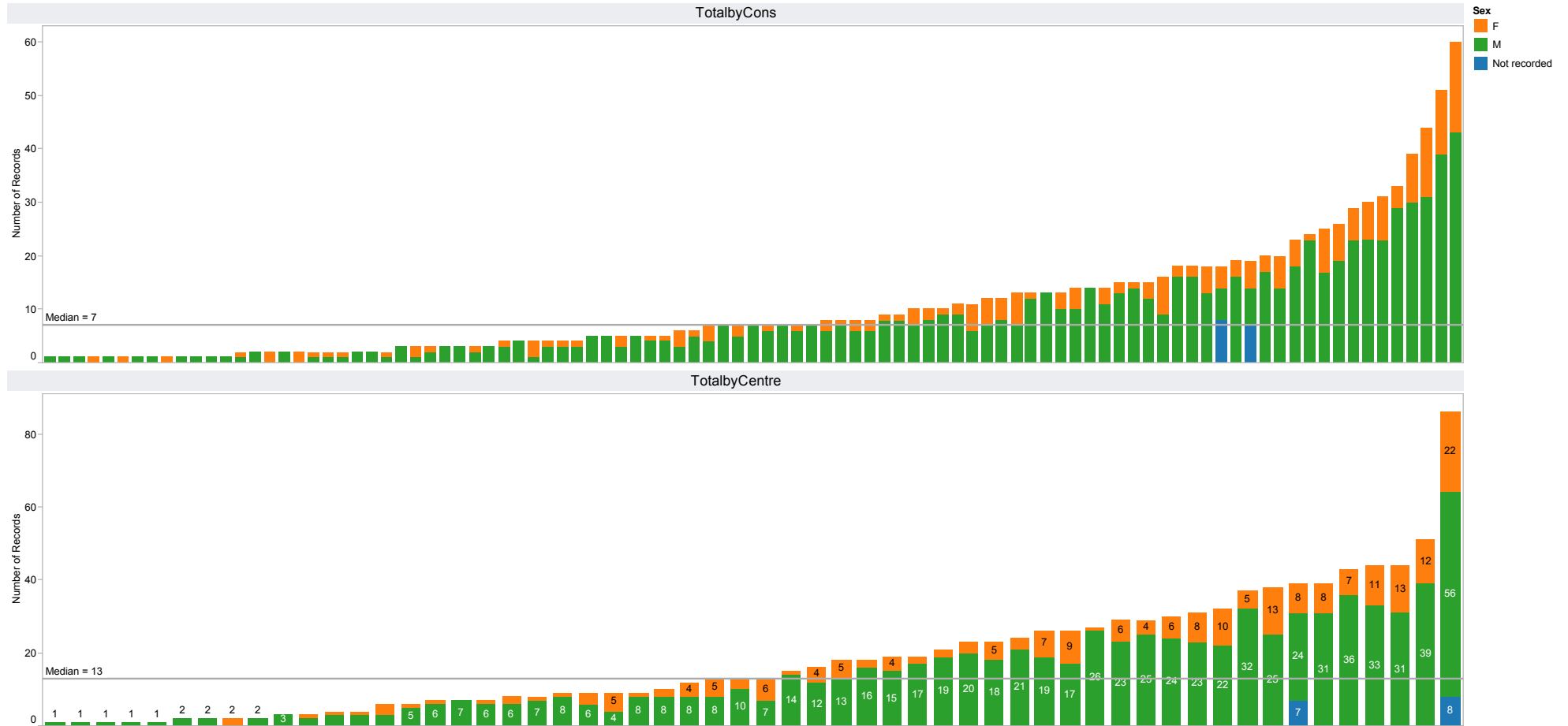
For each of the ranked charts the individual consultant or centre identification numbers were removed and replaced with rank numbers starting at 1. A unique, confidential "Ranking Sheet" has been prepared for each surgeon to enable them to identify their rank in every chart. For those charts where overall figures for the entire database are shown the ranking sheet displays the consultant's individual figures. No one else can identify the results of an individual consultant. The ranked charts comprise single bars and are ranked from left to right in the ascending order of the data item being measured. Where percentages are included figures have been rounded up to one decimal point.

A personal ranking sheet for each consultant registering three or more tumours is available individually to go with this document. Centres or cancer networks that have returned sufficient data may request a copy of these analyses filtered to contain only that data.

Sarah Fowler
BAUS Data & Audit Project Manager

June 2014

Total Returns for Procedures performed between 01/01/2013 and 31/12/2013
 1024 procedures from 105 consultants at 57 centres



Indication		
3: Indication for Cystectomy	N	% Total
Muscle invasive TCC	528	51.6%
Salvage after radiotherapy	41	4.0%
Primary NMIBC	36	3.5%
NBIBC refractory to intravesical treatment	40	3.9%
Uncontrolled non-muscle invasive disease	137	13.4%
Primary CIS	47	4.6%
Squamous cell Ca	37	3.6%
Sarcoma	6	0.6%
Primary adenocarcinoma	13	1.3%
Gynaecological Ca	2	0.2%
Other	90	8.8%
Not recorded	47	4.6%
Grand Total	1,024	100.0%

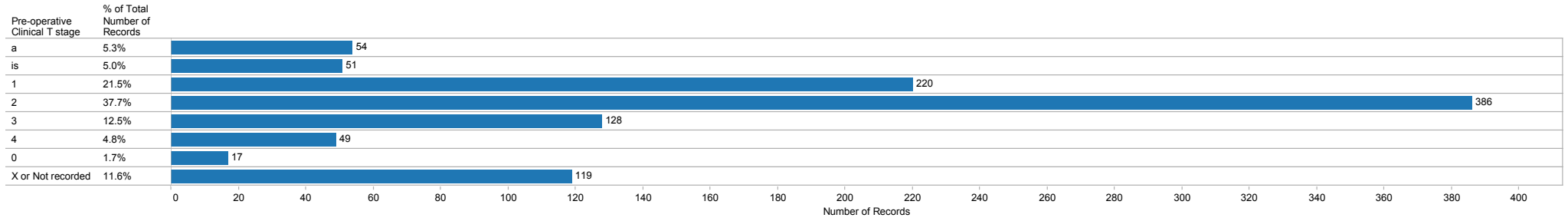
Sex & Age					
Sex	N	% Total	Median	Min. Age	Max. Age
			Age		
M	780	77.7%	69	28	87
F	224	22.3%	68	26	84
Grand Total	1,004	100.0%	69	26	87

Pre-operative Imaging		
Pre-operative..	N	% Total
CT	477	46.6%
CT & Others	375	36.6%
MRI	83	8.1%
MRI & Others	11	1.1%
PET	1	0.1%
USS	3	0.3%
Other	3	0.3%
None	32	3.1%
Not recorded	39	3.8%
Grand Total	1,024	100.0%

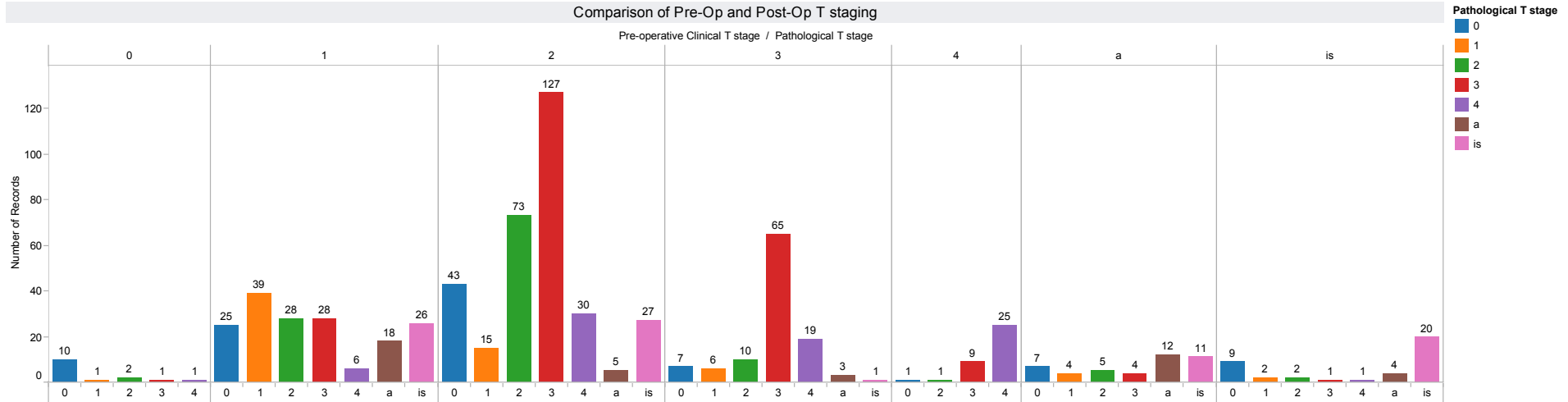
Pre-operative Serum Creatinine		
Serum Creatinine	N	% Total
0 - 120	773	75.5%
121 - 200	132	12.9%
>200	15	1.5%
Not recorded	104	10.2%
Grand Total	1,024	100.0%

Status Upper Tracts		
27: Status upper tracts	N	% Total
Normal	675	65.9%
Unilateral hydronephrosis	138	13.5%
Bilateral hydronephrosis	60	5.9%
TCC	12	1.2%
RCC	1	0.1%
Non functioning kidney	9	0.9%
Other	22	2.1%
Not recorded	107	10.4%
Grand Total	1,024	100.0%

PreOperative cTstage



Comparison of Pre-Op and Post-Op T staging



Grade of Operating Surgeon			
33: Grade of main operating Surgeon	34: Supervised training operation	N	% Total
Consultant	Yes	340	33.2%
	No	607	59.3%
	Not recorded	6	0.6%
SpR	Yes	32	3.1%
	No	1	0.1%
Other	No	15	1.5%
	Yes	3	0.3%
Not recorded	No	1	0.1%
	Not recorded	19	1.9%
Grand Total		1,024	100.0%

ASA Grade		
43: ASA Grade	N	% Total
1	85	8.3%
2	301	29.4%
3	130	12.7%
4	6	0.6%
Not recorded	502	49.0%
Grand Total	1,024	100.0%

Surgical Technique			
34: Surgical technique (group)	Other technique (group)	N	% Total
Open	Transperitoneal	312	30.5%
	Extraperitoneal	33	3.2%
	Not recorded	260	25.4%
Minimally Invasive	Laparoscopic with intracorporeal diversion	22	2.1%
	Robotic with intracorporeal diversion	37	3.6%
	Laparoscopic with open diversion	118	11.5%
	Robotic with open diversion	116	11.3%
	Not recorded	7	0.7%
Not recorded	Not recorded	119	11.6%
Grand Total		1,024	100.0%

Diversion Procedure		
46: Diversion Procedure	N	% Total
Ileal Conduit	854	83.4%
Continent Cutaneous diversion	10	1.0%
Orthotopic	81	7.9%
Rectal diversion	1	0.1%
Other	21	2.1%
Not recorded	57	5.6%
Grand Total	1,024	100.0%

Conversions		
51: Conversion to Open	N	% Total
Yes	10	1.0%
No	279	27.2%
Not recorded	735	71.8%
Grand Total	1,024	100.0%

Duration of Operation by Technique			
58: Duration of operation (skin to skin) (group)	44: Surgical technique	N	% Total
< 3 hours	Open transperitoneal	42	4.6%
	Open extraperitoneal	4	0.4%
	Open	6	0.7%
	Minimally invasive	7	0.8%
3 - 5 hours	Open transperitoneal	177	19.6%
	Open extraperitoneal	24	2.7%
	Open	113	12.5%
	Laparoscopic (including diversion)	9	1.0%
	Laparoscopic with open diversion	31	3.4%
	Robotically assisted (including diversion)	5	0.6%
	Robotically assisted with open diversion	12	1.3%
	Minimally invasive	56	6.2%
> 5 hours	Open transperitoneal	81	9.0%
	Open extraperitoneal	5	0.6%
	Open	122	13.5%
	Laparoscopic (including diversion)	6	0.7%
	Laparoscopic with open diversion	25	2.8%
	Robotically assisted (including diversion)	9	1.0%
	Robotically assisted with open diversion	57	6.3%
	Minimally invasive	57	6.3%
Not recorded	Open transperitoneal	12	1.3%
	Open	19	2.1%
	Laparoscopic (including diversion)	1	0.1%
	Laparoscopic with open diversion	6	0.7%
	Robotically assisted (including diversion)	3	0.3%
	Robotically assisted with open diversion	2	0.2%
Minimally invasive	14	1.5%	
Grand Total		905	100.0%

Length of Stay by Technique			
Post-operative Stay Length	44: Surgical technique	N	% Total
1 - 5	Open transperitoneal	9	1.2%
	Laparoscopic (including diversion)	2	0.3%
	Laparoscopic with open diversion	5	0.7%
	Robotically assisted (including diversion)	2	0.3%
	Robotically assisted with open diversion	5	0.7%
	Minimally invasive	19	2.5%
	Open	4	0.5%
6 - 10	Open transperitoneal	96	12.6%
	Open extraperitoneal	11	1.4%
	Laparoscopic (including diversion)	7	0.9%
	Laparoscopic with open diversion	27	3.5%
	Robotically assisted (including diversion)	1	0.1%
	Robotically assisted with open diversion	17	2.2%
	Minimally invasive	77	10.1%
	Open	82	10.8%
11 - 20	Open transperitoneal	104	13.7%
	Open extraperitoneal	8	1.1%
	Laparoscopic (including diversion)	5	0.7%
	Laparoscopic with open diversion	20	2.6%
	Robotically assisted with open diversion	8	1.1%
	Minimally invasive	23	3.0%
	Open	108	14.2%
21 - 30	Open transperitoneal	23	3.0%
	Open extraperitoneal	1	0.1%
	Laparoscopic with open diversion	2	0.3%
	Robotically assisted with open diversion	2	0.3%
	Minimally invasive	6	0.8%
Open	33	4.3%	
> 30	Open transperitoneal	14	1.8%
	Open extraperitoneal	3	0.4%
	Laparoscopic with open diversion	5	0.7%
	Robotically assisted with open diversion	1	0.1%
	Minimally invasive	7	0.9%
	Open	24	3.2%
Grand Total		761	100.0%

Blood Loss by Technique

44: Surgical technique

59: Measured blood loss (mls)	Open transperitoneal		Open extraperitoneal		Open		Laparoscopic (including diversion)		Laparoscopic with open diversion		Robotically assisted (including diversion)		Robotically assisted with open diversion		Minimally invasive		Grand Total	
	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..
< 300	33	3.6%	3	0.3%	23	2.5%	3	0.3%	21	2.3%	4	0.4%	20	2.2%	49	5.4%	156	17.2%
> 300 - 500	56	6.2%	2	0.2%	45	5.0%	10	1.1%	18	2.0%	7	0.8%	32	3.5%	39	4.3%	209	23.1%
> 500 - 1000	104	11.5%	8	0.9%	76	8.4%	2	0.2%	8	0.9%	5	0.6%	14	1.5%	19	2.1%	236	26.1%
> 1000 - 2000	84	9.3%	14	1.5%	34	3.8%			3	0.3%			2	0.2%	4	0.4%	141	15.6%
> 2000	16	1.8%	5	0.6%	12	1.3%			1	0.1%					1	0.1%	35	3.9%
Not recorded	19	2.1%	1	0.1%	70	7.7%	1	0.1%	11	1.2%	1	0.1%	3	0.3%	22	2.4%	128	14.1%
Grand Total	312	34.5%	33	3.6%	260	28.7%	16	1.8%	62	6.9%	17	1.9%	71	7.8%	134	14.8%	905	100.0%

Blood Transfused by Technique

44: Surgical technique

60: Number of units of blood transfused during ..	Open transperitoneal		Open extraperitoneal		Open		Laparoscopic (including diversion)		Laparoscopic with open diversion		Robotically assisted (including diversion)		Robotically assisted with open diversion		Minimally invasive		Grand Total	
	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..	N	% of Total Number..
Nil	189	20.9%	19	2.1%	130	14.4%	14	1.5%	49	5.4%	12	1.3%	59	6.5%	102	11.3%	574	63.4%
Minor (<= 2)	62	6.9%	4	0.4%	49	5.4%	1	0.1%	3	0.3%	2	0.2%	4	0.4%	5	0.6%	130	14.4%
Moderate (>2 - 6)	33	3.6%	2	0.2%	21	2.3%			2	0.2%	1	0.1%	1	0.1%	1	0.1%	61	6.7%
Major (> 6)	3	0.3%	2	0.2%	4	0.4%											9	1.0%
Not recorded	25	2.8%	6	0.7%	56	6.2%	1	0.1%	8	0.9%	2	0.2%	7	0.8%	26	2.9%	131	14.5%
Grand Total	312	34.5%	33	3.6%	260	28.7%	16	1.8%	62	6.9%	17	1.9%	71	7.8%	134	14.8%	905	100.0%

Intraoperative Complications by Technique			
44: Surgical technique (group)	53: Intraoperative complications (group)	N	% Total
Open	None	495	48.3%
	Haemorrhage / Bleeding	32	3.1%
	Adhesions	23	2.2%
	Nerve injury	1	0.1%
	Rectal injury	6	0.6%
	Small bowel injury	4	0.4%
	Unresectable tumour	4	0.4%
	Vascular injury	2	0.2%
	Port complications	1	0.1%
	Difficult dissection	10	1.0%
	Not recorded	27	2.6%
Minimally invasive	None	252	24.6%
	Haemorrhage / Bleeding	11	1.1%
	Adhesions	12	1.2%
	Nerve injury	1	0.1%
	Unresectable tumour	3	0.3%
	Difficult dissection	1	0.1%
Not recorded	20	2.0%	
Not recorded	None	53	5.2%
	Haemorrhage / Bleeding	3	0.3%
	Rectal injury	1	0.1%
	Not recorded	62	6.1%
Grand Total		1,024	100.0%

Post operative Complications by Technique			
44: Surgical technique (group)	54: Postoperative complications (group)	N	% Total
Open	None	316	30.9%
	Anastomotic leak	3	0.3%
	Bleeding / haemorrhage	2	0.2%
	Bowel obstruction	8	0.8%
	Chest infection	36	3.5%
	Intra-abdominal infection	23	2.2%
	Lymphocele	1	0.1%
	Urine Leak	6	0.6%
	Chest infection; Intra-abdomin..	1	0.1%
	Wound infection +/- others	43	4.2%
	PE / DVT	1	0.1%
	Prolonged ileus	45	4.4%
	Not recorded	120	11.7%
Minimally invasive	None	168	16.4%
	Anastomotic leak	1	0.1%
	Bleeding / haemorrhage	2	0.2%
	Bowel obstruction	4	0.4%
	Chest infection	13	1.3%
	Intra-abdominal infection	8	0.8%
	Urine Leak	2	0.2%
	Wound infection +/- others	16	1.6%
	Prolonged ileus	18	1.8%
	Not recorded	68	6.6%
Not recorded	None	72	7.0%
	Chest infection	2	0.2%
	Intra-abdominal infection	3	0.3%
	Urine Leak	1	0.1%
	Wound infection +/- others	3	0.3%
	Prolonged ileus	5	0.5%
Not recorded	33	3.2%	
Grand Total		1,024	100.0%

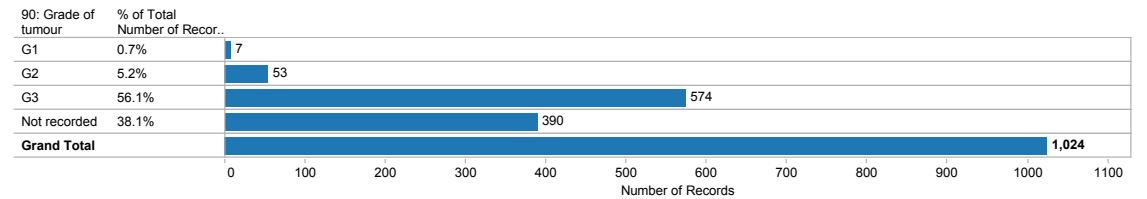
Clavien Dindo Grade of complications

60: Clavien Di.. 34: Surgical techn...		N	% Total
Grade I	Open	75	22.5%
	Minimally Invasive	33	9.9%
	Not recorded	4	1.2%
	Total	112	33.6%
Grade II	Open	106	31.8%
	Minimally Invasive	34	10.2%
	Not recorded	8	2.4%
	Total	148	44.4%
Grade IIIa	Open	16	4.8%
	Minimally Invasive	3	0.9%
	Total	19	5.7%
Grade IIIb	Open	29	8.7%
	Minimally Invasive	6	1.8%
	Not recorded	1	0.3%
	Total	36	10.8%
Grade IVa	Open	3	0.9%
	Minimally Invasive	5	1.5%
	Not recorded	1	0.3%
	Total	9	2.7%
Grade IVb	Open	1	0.3%
	Minimally Invasive	1	0.3%
	Total	2	0.6%
Grade V (death)	Open	3	0.9%
	Minimally Invasive	3	0.9%
	Not recorded	1	0.3%
	Total	7	2.1%
Grand Total		333	100.0%

Operative Histology

88: Operative Histology	N	% Total
No cancer	124	12.1%
TCC	524	51.2%
Squamous cell Ca	44	4.3%
Primary CIS	71	6.9%
Primary adenocarcinoma	19	1.9%
Secondary adenocarcinoma	5	0.5%
Sarcoma	7	0.7%
Gynaecological Ca	8	0.8%
Radiation change only	3	0.3%
Other	43	4.2%
Not recorded	176	17.2%
Grand Total	1,024	100.0%

Grade of Tumour



Lymph Nodes

91: Number of lymph nodes sampled	Number of Positive Lymph Nodes											
	0		1 - 5		6 - 10		11 - 20		Not recorded / N/A		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 ..
1 to 5	47	10.5%	9	2.0%					1	0.2%	57	12.7%
6 to 10	76	16.9%	20	4.5%	2	0.4%			4	0.9%	102	22.7%
11 to 20	126	28.1%	23	5.1%	2	0.4%	4	0.9%	4	0.9%	159	35.4%
> 20	61	13.6%	7	1.6%	1	0.2%	2	0.4%			71	15.8%
None									60	13.4%	60	13.4%
Grand Total	310	69.0%	59	13.1%	5	1.1%	6	1.3%	69	15.4%	449	100.0%

Status at most recent Follow-up

Currentstatus	Time to FU days (group)									
	0 - 90		91 - 180		181 - 360		> 360		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 ..
Alive with no evidence of bladder cancer	78	35.6%	65	29.7%	36	16.4%	9	4.1%	188	85.8%
Alive with local recurrence of bladder cancer	1	0.5%	1	0.5%	1	0.5%			3	1.4%
Alive with lymph node involvement by bladder cancer	4	1.8%	2	0.9%	1	0.5%			7	3.2%
Alive with metastatic disease	4	1.8%	5	2.3%					9	4.1%
Dead	2	0.9%							2	0.9%
Not recorded	3	1.4%	2	0.9%	2	0.9%	3	1.4%	10	4.6%
Grand Total	92	42.0%	75	34.2%	40	18.3%	12	5.5%	219	100.0%

Participating Hospital Centres 2013

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

Arrowe Park Hospital	James Cook University Hospital	Royal Preston Hospital
Barking, Havering and Redbridge University Hospitals NHS Trust	Kent & Canterbury Hospital	Royal Surrey County Hospital
Belfast City Hospital	Leicester General Hospital	Royal Sussex County Hospital
Buckinghamshire Hospitals NHS Trust	Lincoln & Louth NHS Trust	Southampton General Hospital
Cheltenham General Hospital	Medway Maritime Hospital	Southend University Hospital NHS Foundation Trust
City Hospitals Sunderland NHS Foundation Trust	New Cross Hospital, Wolverhampton	St George's Hospital
Colchester Hospital University NHS Foundation Trust	Norfolk & Norwich Hospital	St James' Hospital, Dublin
Darent Valley Hospital	North Bristol NHSTrust (Southmead)	St James's University Hospital
Derby Hospitals NHS Foundation Trust	Northampton General Hospital	Stepping Hill Hospital
Derriford Hospital	Pinderfields Hospital	Stirling Royal Infirmary / Forth Valley Royal
East Lancashire Hospitals NHS Trust	Portsmouth Hospitals NHS Trust	Stobhill Hospital
East Sussex Hospitals NHS Trust	Princess Elizabeth Hospital, Guernsey	Taunton And Somerset Hospital
Freeman Hospital	Queen Elizabeth Hospital, B'ham	Torbay Hospital
Gartnavel General Hospital	Royal Alexandra Hospital (Paisley)	United Bristol Health Care Trust
Guy's & Thomas's Hospital	Royal Berkshire NHS Foundation Trust	University College Hospital London
Heatherwood & Wexham Park NHS Trust	Royal Bournemouth Hospital	University Hospital of North Stafford
Imperial College Healthcare NHS Trust	Royal Devon And Exeter Hospital	Victoria Hospital, Kirkcaldy
	Royal Hallamshire Hospital	Withington Hospital
	Royal Liverpool University Hospital	Wrexham Maelor Hospital
	Royal Marsden Hospital	