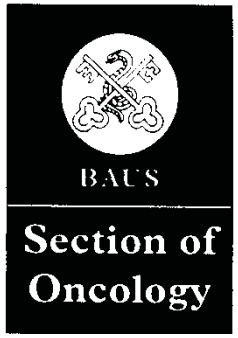


THE BRITISH ASSOCIATION OF

UROLOGICAL SURGEONS

SECTION of ONCOLOGY

Analyses of Cystectomy Dataset

January 1st – 31st December 2012

June 2013

MEMBERS OF THE EXECUTIVE COMMITTEE

S Brewster	D Cahill	J Cresswell	S Khan
A McNeill	H Mostafid	T O'Brien	V Srinivasin

PRODUCED FOR BAUS SECTION OF ONCOLOGY

by

Sarah Fowler

Manager BAUS data & audit project

CONTENTS

GENERAL INTRODUCTION

As in previous years we are extremely grateful for Sarah Fowler's hard work to produce the 2012 complex operation datasets. This year the introduction of compulsory publication of individual surgeon's outcome data and the start of revalidation has underlined the importance of contributing to these national datasets.

Urologists performing nephrectomy will be the first to have their results published and this is reflected in the significant increase (240%) in returns for the nephrectomy dataset (from 2,382 in 2011 to 5,829 in 2012). We estimate this represents 75% of all nephrectomies carried out in England and emphasizes the need for all of us carrying out complex operations to record our results.

As a section our task now is to decide for each operation what constitutes a good outcome and what we use to measure this (ideally using no more than 1-2 outcome measures!) We can then make each dataset fit for this purpose whilst hopefully being easier to use by removing some unnecessary fields.

The datasets have evolved over time to incorporate new information (e.g. the Clavien-Dindo classification for complications) so that each now represents the most comprehensive and up to date national snapshot of that operation. However we can all help to improve them still further by recording all cases and collecting follow up data.

It is also worth reminding members that centre and individual results are available on request and would form a valuable tool for departmental audit and individual revalidation.

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

Hugh Mostafid

June 2013

AUDIT RESULTS SUMMARY - Cystectomy dataset (January 1st – December 31st 2012)

- 743 Cystectomies reported by 74 consultants from 45 centres
  - 91% of the data (678/743)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 – 64
  - Median per centre = 6, range 1 – 70
  - 73% males (533/728 recorded) ; Median age at Operation 69, Range 26 - 88

How were the data analysed?

All the data presented here are a summary of the data extracted from the web-based database on 13th May 2013 and relate to operations performed during the whole of 2012. 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.

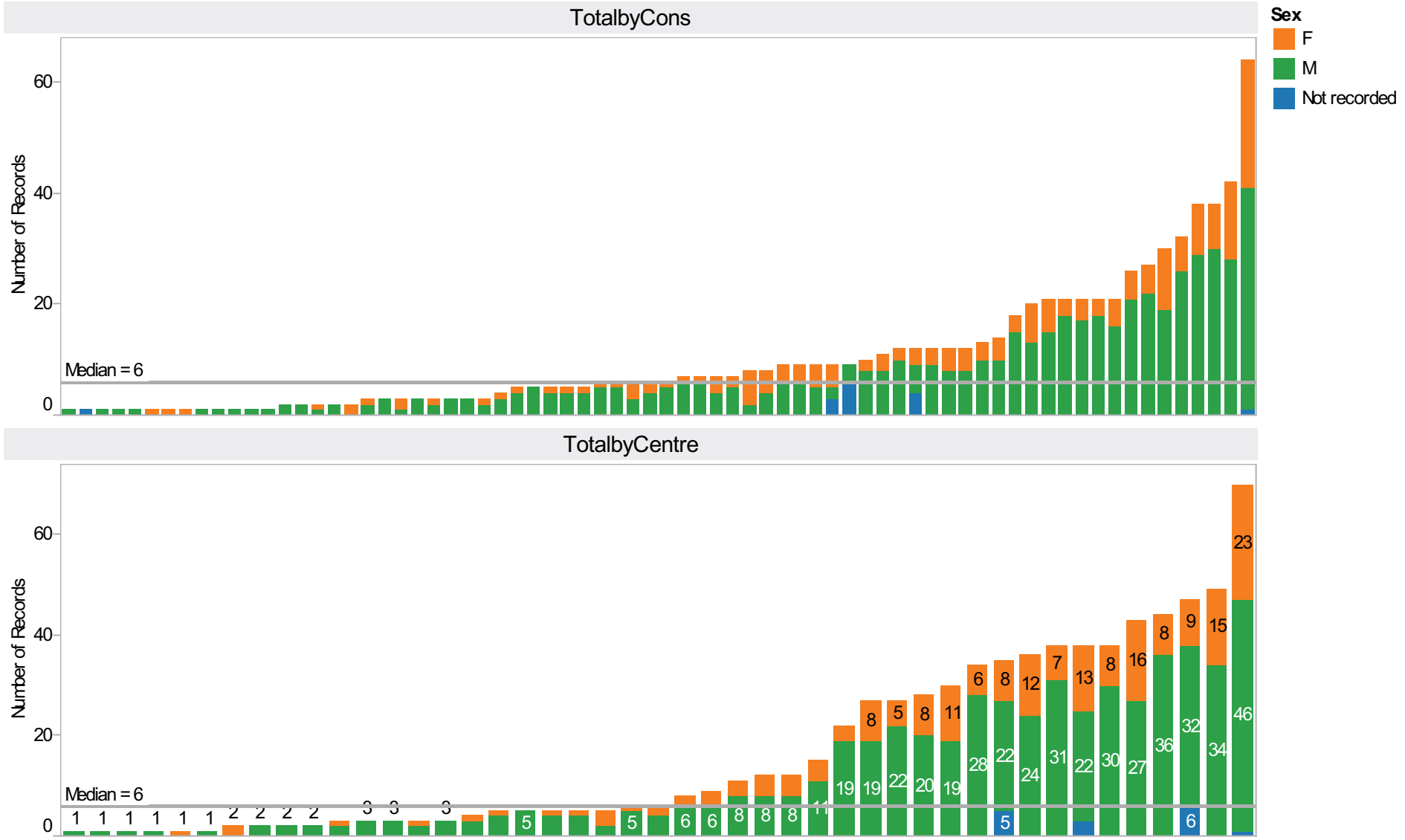
A personal ranking sheet for each consultant registering three or more tumours is available individually to go with this document. Centres or cancer networks that have returned sufficient data may request a copy of these analyses filtered to contain only that data.

Sarah Fowler
BAUS Data & Audit Project Manager

June 2013

Total Cystectomy returns: 743 procedures from 74 consultants at 45 centres

Total Returns for Procedures performed between 01/01/2012 and 31/12/2012



Indication

3: Indication for Cystectomy	N	% Total
Muscle invasive TCC	382	51.4%
Uncontrolled non-muscle invasive di..	151	20.3%
Primary CIS	37	5.0%
Squamous cell Ca	31	4.2%
Salvage after radiotherapy	18	2.4%
Sarcoma	18	2.4%
Primary adenocarcinoma	5	0.7%
Gynaecological Ca	3	0.4%
Secondary adenocarcinoma	3	0.4%
Other	59	7.9%
Not recorded	36	4.8%
Grand Total	743	100.0%

Sex & Age

Sex	N	% Total	Median Age	Min. Age	Max. Age
M	533	71.7%	69.0	38.0	88.0
F	195	26.2%	68.0	28.0	88.0
Not recorded	15	2.0%	68.5	33.0	79.0
Grand Total	743	100.0%	69.0	28.0	88.0

Pre-operative Imaging

9: Pre-operati..	N	% Total
CT	352	47.4%
CT & Others	208	28.0%
MRI	47	6.3%
MRI & Others	5	0.7%
IVU	1	0.1%
PET	1	0.1%
USS	4	0.5%
None	11	1.5%
Other	2	0.3%
Not recorded	112	15.1%
Grand Total	743	100.0%

Pre-operative Serum Creatinine

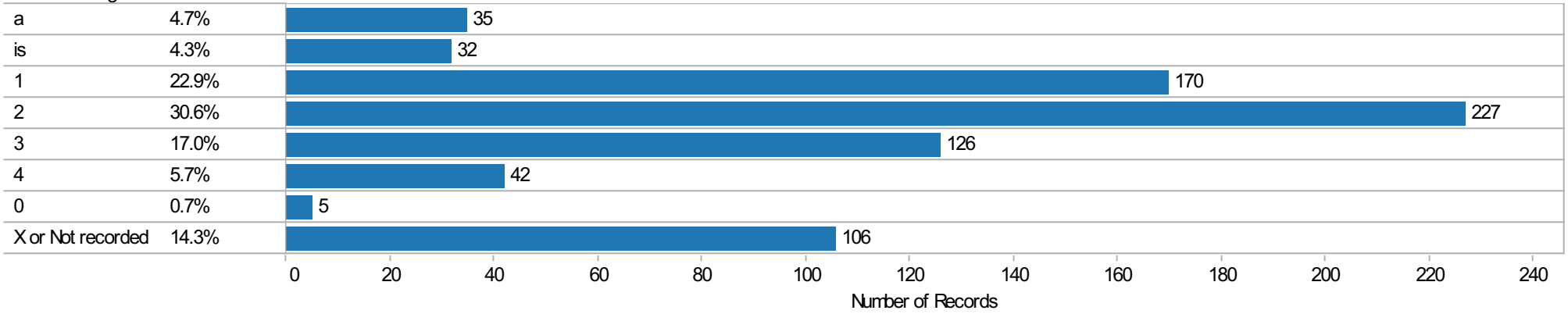
Serum Creatinine	N	% Total
0 - 120	536	72.1%
121 - 200	96	12.9%
>200	11	1.5%
Not recorded	100	13.5%
Grand Total	743	100.0%

Status Upper Tracts

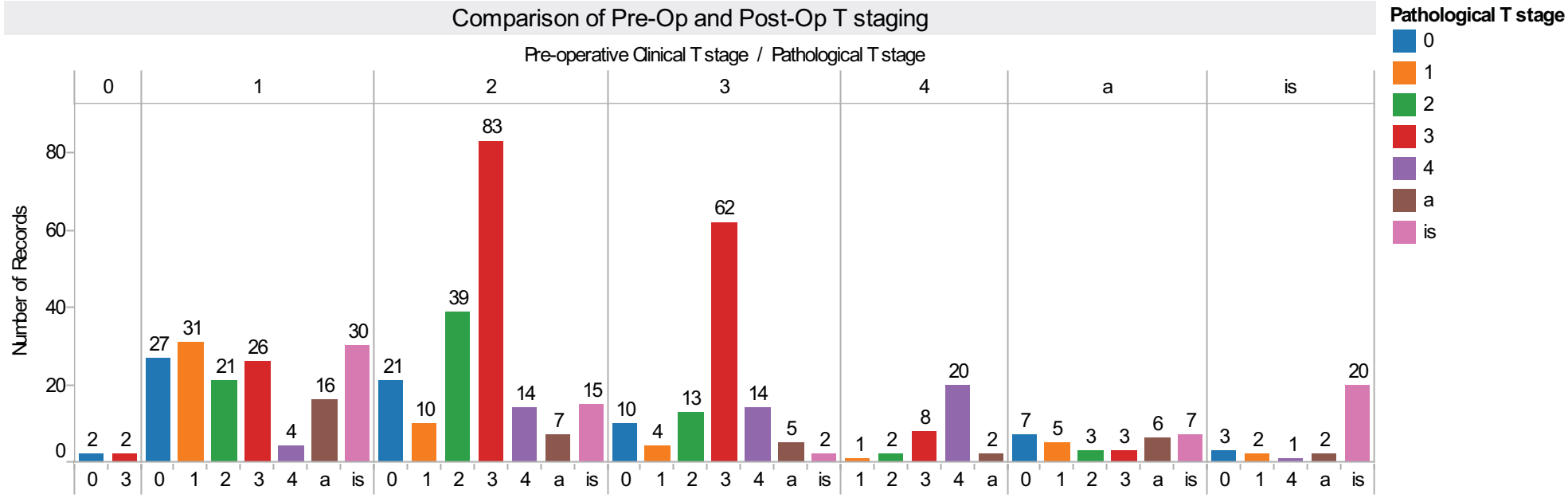
23: Status upper tracts	N	% Total
Normal	443	59.6%
Unilateral hydronephrosis	104	14.0%
Bilateral hydronephrosis	31	4.2%
TCC	17	2.3%
RCC	2	0.3%
Non functioning kidney	5	0.7%
Other	12	1.6%
Not recorded	129	17.4%
Grand Total	743	100.0%

PreOperative cTstage

Pre-operative Clinical T stage	% of Total Number of Records	Number of Records
a	4.7%	35
is	4.3%	32
1	22.9%	170
2	30.6%	227
3	17.0%	126
4	5.7%	42
0	0.7%	5
X or Not recorded	14.3%	106



Comparison of Pre-Op and Post-Op T staging



Grade of Operating Surgeon

29: Grade of main operating Surgeon	30: Supervised training operation	N	% Total
Consultant	Yes	215	28.9%
	No	412	55.5%
	Not recorded	89	12.0%
	Total	716	96.4%
SpR	Yes	13	1.7%
	No	10	1.3%
	Total	23	3.1%
Not recorded	No	1	0.1%
	Not recorded	3	0.4%
	Total	4	0.5%
Grand Total		743	100.0%

ASA Grade

33: ASA Grade	N	% Total
1	87	11.7%
2	359	48.3%
3	147	19.8%
4	5	0.7%
Not recorded	145	19.5%
Grand Total	743	100.0%

Surgical Technique

34: Surgical technique	N	% Total
Open transperitoneal	506	68.1%
Open extraperitoneal	43	5.8%
Laparoscopic (including diversion)	27	3.6%
Laparoscopic with open diversion	49	6.6%
Robotically assisted (including diversion)	8	1.1%
Robotically assisted with open diversion	43	5.8%
Not recorded	67	9.0%
Grand Total	743	100.0%

Diversion Procedure

35: Diversion Procedure	N	% Total
Ileal Conduit	649	87.3%
Continent Cutaneous diversion	15	2.0%
Orthotopic	40	5.4%
Other	27	3.6%
Not recorded	12	1.6%
Grand Total	743	100.0%

Conversions

40: If minimally invasive approach wa..	N	% Total
Yes	3	0.4%
No	120	16.2%
Not recorded	620	83.4%
Grand Total	743	100.0%

Duration of Operation by Technique

47: Duration of operation (skin to skin)	34: Surgical technique	N	% Total
< 3 hours	Open transperitoneal	40	5.9%
	Open extraperitoneal	2	0.3%
	Laparoscopic (including diversion)	1	0.1%
3 - 4 hours	Open transperitoneal	130	19.2%
	Open extraperitoneal	15	2.2%
	Laparoscopic (including diversion)	2	0.3%
	Laparoscopic with open diversion	9	1.3%
	Robotically assisted with open diversion	1	0.1%
4 - 5 hours	Open transperitoneal	147	21.7%
	Open extraperitoneal	10	1.5%
	Laparoscopic (including diversion)	7	1.0%
	Laparoscopic with open diversion	28	4.1%
	Robotically assisted with open diversion	5	0.7%
5 - 6 hours	Open transperitoneal	95	14.1%
	Open extraperitoneal	10	1.5%
	Laparoscopic (including diversion)	3	0.4%
	Laparoscopic with open diversion	4	0.6%
	Robotically assisted (including diversion)	1	0.1%
	Robotically assisted with open diversion	6	0.9%
> 6 hours	Open transperitoneal	64	9.5%
	Open extraperitoneal	4	0.6%
	Laparoscopic (including diversion)	3	0.4%
	Laparoscopic with open diversion	7	1.0%
	Robotically assisted (including diversion)	5	0.7%
	Robotically assisted with open diversion	29	4.3%
Not recorded	Open transperitoneal	30	4.4%
	Open extraperitoneal	2	0.3%
	Laparoscopic (including diversion)	11	1.6%
	Laparoscopic with open diversion	1	0.1%
	Robotically assisted (including diversion)	2	0.3%
	Robotically assisted with open diversion	2	0.3%
Grand Total		676	100.0%

Length of Stay by Technique

Post-operative Stay Length	34: Surgical technique	N	% Total
1 - 5	Open transperitoneal	7	1.2%
	Open extraperitoneal	2	0.3%
	Laparoscopic (including diversion)	1	0.2%
	Laparoscopic with open diversion	1	0.2%
	Robotically assisted with open diversion	1	0.2%
6 - 10	Open transperitoneal	147	25.3%
	Open extraperitoneal	11	1.9%
	Laparoscopic (including diversion)	10	1.7%
	Laparoscopic with open diversion	29	5.0%
	Robotically assisted (including diversion)	2	0.3%
	Robotically assisted with open diversion	20	3.4%
11 - 20	Open transperitoneal	202	34.7%
	Open extraperitoneal	12	2.1%
	Laparoscopic (including diversion)	10	1.7%
	Laparoscopic with open diversion	19	3.3%
	Robotically assisted (including diversion)	4	0.7%
	Robotically assisted with open diversion	13	2.2%
21 - 30	Open transperitoneal	41	7.0%
	Open extraperitoneal	4	0.7%
	Laparoscopic (including diversion)	2	0.3%
	Robotically assisted (including diversion)	1	0.2%
	Robotically assisted with open diversion	2	0.3%
> 30	Open transperitoneal	34	5.8%
	Open extraperitoneal	2	0.3%
	Laparoscopic (including diversion)	4	0.7%
	Robotically assisted (including diversion)	1	0.2%
Grand Total		582	100.0%

Blood Loss by Technique

34: Surgical technique

48: Measured blood loss (mls)	Open transperitoneal N	Open transperitoneal % of Total Number of Records ..	Open extraperitoneal N	Open extraperitoneal % of Total Number of Records ..	Laparoscopic (including diversion) N	Laparoscopic (including diversion) % of Total Number of Records ..	Laparoscopic with open diversion N	Laparoscopic with open diversion % of Total Number of Records ..	Robotically assisted (including diversion) N	Robotically assisted (including diversion) % of Total Number of Records ..	Robotically assisted with open diversion N	Robotically assisted with open diversion % of Total Number of Records ..	**Grand Total** N	**Grand Total** % of Total Number of Records ..
< 300	49	7.2%			4	0.6%	6	0.9%	3	0.4%	7	1.0%	69	10.2%
> 300 - 500	107	15.8%	5	0.7%	8	1.2%	19	2.8%	1	0.1%	7	1.0%	147	21.7%
> 500 - 1000	160	23.7%	21	3.1%	5	0.7%	13	1.9%			2	0.3%	201	29.7%
> 1000 - 2000	111	16.4%	8	1.2%			8	1.2%			2	0.3%	129	19.1%
> 2000	30	4.4%	2	0.3%			1	0.1%			1	0.1%	34	5.0%
Not recorded	49	7.2%	7	1.0%	10	1.5%	2	0.3%	4	0.6%	24	3.6%	96	14.2%
Grand Total	506	74.9%	43	6.4%	27	4.0%	49	7.2%	8	1.2%	43	6.4%	676	100.0%

Blood Transfused by Technique

34: Surgical technique

49: Number of units of blood transfused during..	Open transperitoneal N	Open transperitoneal % of Total Number of Records ..	Open extraperitoneal N	Open extraperitoneal % of Total Number of Records ..	Laparoscopic (including diversion) N	Laparoscopic (including diversion) % of Total Number of Records ..	Laparoscopic with open diversion N	Laparoscopic with open diversion % of Total Number of Records ..	Robotically assisted (including diversion) N	Robotically assisted (including diversion) % of Total Number of Records ..	Robotically assisted with open diversion N	Robotically assisted with open diversion % of Total Number of Records ..	**Grand Total** N	**Grand Total** % of Total Number of Records ..
Nil	291	43.0%	21	3.1%	17	2.5%	36	5.3%	7	1.0%	31	4.6%	403	59.6%
Minor (< = 2)	90	13.3%	5	0.7%			8	1.2%	1	0.1%	5	0.7%	109	16.1%
Moderate (>2 - 6)	32	4.7%	7	1.0%							2	0.3%	41	6.1%
Major (> 6)	3	0.4%	1	0.1%									4	0.6%
Not recorded	90	13.3%	9	1.3%	10	1.5%	5	0.7%			5	0.7%	119	17.6%
Grand Total	506	74.9%	43	6.4%	27	4.0%	49	7.2%	8	1.2%	43	6.4%	676	100.0%

Intraoperative Complications by Technique

Surgical Technique	53: Intraoperative complications (group)	N	% Total
Open	None	418	61.8%
	Not recorded	68	10.1%
	Haemorrhage / Bleedi..	34	5.0%
	Adhesions	8	1.2%
	Nerve injury	1	0.1%
	Rectal injury	8	1.2%
	Small bowel injury	4	0.6%
	Unresectable tumour	3	0.4%
	Vascular injury	3	0.4%
	Port complications	2	0.3%
Laparoscopic	None	7	1.0%
	Not recorded	18	2.7%
	Nerve injury	1	0.1%
	Unresectable tumour	1	0.1%
Laparoscopic with open diversion	None	43	6.4%
	Not recorded	1	0.1%
	Haemorrhage / Bleedi..	4	0.6%
	Rectal injury	1	0.1%
Robotically assisted	None	7	1.0%
	Nerve injury	1	0.1%
Robotically assisted with open diversion	None	37	5.5%
	Haemorrhage / Bleedi..	1	0.1%
	Adhesions	2	0.3%
	Nerve injury	1	0.1%
	Rectal injury	1	0.1%
	Robotic device failure	1	0.1%
Grand Total		676	100.0%

Post operative Complications by Technique

Surgical Technique	54: Postoperative complications (group)	N	% Total
Open	None	251	37.1%
	Anastomotic leak	1	0.1%
	Bleeding / haemorrhage	7	1.0%
	Bowel obstruction	3	0.4%
	Chest infection	26	3.8%
	Intra-abdominal infection	8	1.2%
	Lymphocoele	4	0.6%
	Prolonged ileus	53	7.8%
	Urine Leak	4	0.6%
	Not recorded	147	21.7%
	Wound infection +/- others	45	6.7%
Laparoscopic	None	3	0.4%
	Bleeding / haemorrhage	1	0.1%
	Chest infection	3	0.4%
	Prolonged ileus	1	0.1%
	Urine Leak	4	0.6%
	Not recorded	13	1.9%
	Wound infection +/- others	2	0.3%
Laparoscopic with open diversion	None	40	5.9%
	Intra-abdominal infection	1	0.1%
	Prolonged ileus	4	0.6%
	Not recorded	3	0.4%
	Wound infection +/- others	1	0.1%
Robotically assisted	None	3	0.4%
	Anastomotic leak	1	0.1%
	Chest infection	1	0.1%
	Not recorded	3	0.4%
Robotically assisted with open diversion	None	12	1.8%
	Anastomotic leak	1	0.1%
	Chest infection	1	0.1%
	Intra-abdominal infection	1	0.1%
	Prolonged ileus	2	0.3%
	Not recorded	26	3.8%
Grand Total		676	100.0%

Clavien Dindo Grade of complications

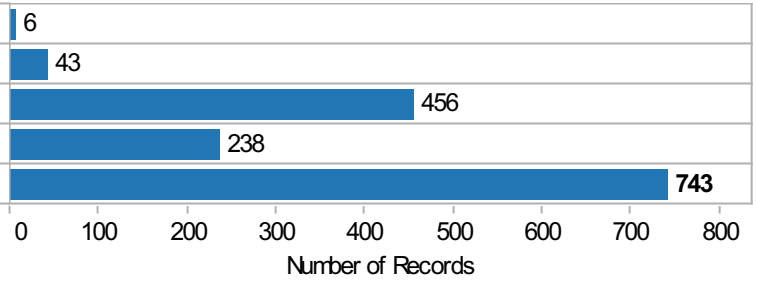
60: Clavien Di..	34: Surgical technique (group)	N	% Total
Grade I	Open	74	36.1%
	Laparoscopic	1	0.5%
	Laparoscopic with open diver..	6	2.9%
	Robotically assisted with open..	6	2.9%
	Not recorded	2	1.0%
	Total	89	43.4%
Grade II	Open	53	25.9%
	Laparoscopic	1	0.5%
	Laparoscopic with open diver..	4	2.0%
	Robotically assisted	3	1.5%
	Robotically assisted with open..	5	2.4%
	Total	66	32.2%
Grade IIIa	Open	13	6.3%
	Robotically assisted with open..	2	1.0%
	Total	15	7.3%
Grade IIIb	Open	17	8.3%
	Laparoscopic with open diver..	1	0.5%
	Robotically assisted with open..	1	0.5%
	Total	19	9.3%
Grade IVa	Open	5	2.4%
	Robotically assisted with open..	1	0.5%
	Total	6	2.9%
Grade IVb	Open	2	1.0%
	Total	2	1.0%
Grade V (death)	Open	7	3.4%
	Not recorded	1	0.5%
	Total	8	3.9%
Grand Total		205	100.0%

Operative Histology

63: Operative Histology	N	% Total
No cancer	82	11.0%
TCC	376	50.6%
Squamous cell Ca	33	4.4%
Primary CIS	60	8.1%
Primary adenocarcinoma	6	0.8%
Secondary adenocarcinoma	2	0.3%
Sarcoma	16	2.2%
Gynaecological Ca	5	0.7%
Radiation change only	2	0.3%
Other	29	3.9%
Not recorded	132	17.8%
Grand Total	743	100.0%

Grade of Tumour

65: Grade of tumour	% of Total Number of Records
G1	0.8%
G2	5.8%
G3	61.4%
Not recorded	32.0%
Grand Total	



Lymph Nodes

Number of Positive Lymph Nodes

66: Number of lymph nodes sampled	0		1 - 5		6 - 10		>20		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 ..	N	% of Total Number of Records ..
1 to 5	57	9.9%	20	3.5%							3	0.5%	80	13.9%
6 to 10	99	17.2%	24	4.2%	1	0.2%					5	0.9%	129	22.4%
11 to 20	166	28.9%	38	6.6%	9	1.6%			1	0.2%	13	2.3%	227	39.5%
> 20	62	10.8%	15	2.6%	4	0.7%	1	0.2%	1	0.2%	6	1.0%	89	15.5%
None											50	8.7%	50	8.7%
Grand Total	384	66.8%	97	16.9%	14	2.4%	1	0.2%	2	0.3%	77	13.4%	575	100.0%

Status at most recent Follow-up

Time to FU days (group)

Currentstatus	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	76	40.6%	56	29.9%	16	8.6%	8	4.3%	156	83.4%
Alive with local recurrence of bladder cancer			1	0.5%	1	0.5%			2	1.1%
Alive with lymph node involvement by bladder cancer	2	1.1%	4	2.1%					6	3.2%
Alive with metastatic disease	2	1.1%	2	1.1%	1	0.5%			5	2.7%
Dead	3	1.6%	2	1.1%					5	2.7%
Not recorded	3	1.6%	5	2.7%	3	1.6%	2	1.1%	13	7.0%
Grand Total	86	46.0%	70	37.4%	21	11.2%	10	5.3%	187	100.0%

Participating Hospital Centres 2012

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

Aberdeen Royal Infirmary
Arrowe Park Hospital
Belfast City Hospital
Buckinghamshire Hospitals NHS Trust
City Hospitals Sunderland NHS Foundation Trust
Colchester Hospital University NHS Foundation Trust
Derby Hospitals NHS Foundation Trust
Derriford Hospital
Freeman Hospital
Gartnavel General Hospital
Guy's & Thomas's Hospital
James Cook University Hospital
Kent & Canterbury Hospital
King George Hospital
Leicester General Hospital
Lincoln & Louth NHS Trust
Medway Maritime Hospital
New Cross Hospital, Wolverhampton
Norfolk & Norwich Hospital
Nottingham City Hospital
Pinderfields Hospital
Portsmouth Hospitals NHS Trust
Queen Elizabeth Hospital, B'ham
Queen Margaret Hospital
Raigmore Hospital
Royal Alexandra Hospital (Paisley)
Royal Berkshire NHS Foundation Trust
Royal Hallamshire Hospital
Royal Liverpool University Hospital
Royal Preston Hospital
Salisbury District Hospital
Southampton General Hospital
St George's Hospital
St James's University Hospital
Stepping Hill Hospital
Stirling Royal Infirmary / Forth Valley Royal
Stobhill Hospital
Torbay Hospital
University Hospital Of Wales
Victoria Hospital, Kirkcaldy
Walsgrave Hospital (UNIVERSITY HOSPITALS COVENTRY AND WARWICKSHIRE NHS TRUST)
Western General Hospital, Edinburgh
Withington Hospital
Wrexham Maelor Hospital
Ysbyty Gwynedd Hospital