

**THE BRITISH ASSOCIATION OF  
UROLOGICAL SURGEONS**

**SECTION of ONCOLOGY**

**BAUS Cancer Registry  
Analyses of Complex Operations  
January 1<sup>st</sup> – 31<sup>st</sup> December 2004**

**May 2005**

**MEMBERS OF THE EXECUTIVE COMMITTEE**

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**PRODUCED FOR BAUS SECTION OF ONCOLOGY**

**by**

**Mrs Sarah Fowler  
BAUS Cancer Registry Manager**

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## Introduction

It is a pleasure to write the introduction to this first analysis of the BAUS Cancer Registry (BCR) Complex Operations Audit on behalf of the Executive committee of the British Association of Urological Surgeons Oncology Section.

As with many such new studies initial entry of data was slow but I feel that the participants deserve congratulation on the numbers of cases submitted for 2004. The headline figures are over 1400 radical prostatectomies, 400 radical cystectomies and just over 1000 nephrectomies. This is quite an achievement for the first year and demonstrates a commitment on behalf of the membership to record and audit these patients.

The baseline data is interesting and the (30 day) mortality figures of 0.3% and 3.2% for radical prostatectomy and radical cystectomy respectively are reassuring. This is especially so in the light of the NICE Urology Cancer IOG figure of aiming for a <4% mortality rate for cystectomy. We must not be complacent about these figures however, but with individualised participant data now being available to compare with the national norm, these results will be reassuring to many and pose questions to a few.

Although we would have benefited from a greater number of submitted cases and therefore a more complete picture, in these days of imposition of Urology Cancer Improving Outcome Guidance throughout England & Wales, this data questions the validity of the centralisation agenda. If we, as a urological surgical community can achieve these impressive results largely before centralisation, is the clinical disruption, demoralisation of staff and inconvenience to patients really warranted? It will be heartening to many, having been told that our UK results were so poor, to see these figures.

Follow up data for all three procedures have been less well submitted than the original procedures, and the true value of the audit will be the outcome data. We must ensure that data capture and submission is as easy as possible and then the massed, analysed data fed back to the participants at individual, surgical centre and cancer network level will allow complete interpretation and subsequent closure of the audit loop. Continuing commitment to collect and enter follow-up data is therefore vital.

With the ever increasing data collected in the BAUS Cancer Registry, and this Complex Operations Audit section especially, we have reached a point where serious consideration of the development and analysis capabilities of the Registry is required. With adequate funding to enhance the Registry, I believe it can become an excellent research and audit tool of contemporary British urological practice. Our Oncology Section and BAUS must grasp this nettle and not lose this important resource nor squander the commitment of the participants and membership.

Our thanks should go to Sarah Fowler, our database manager, who has laboured long and hard to produce the data and her long sufferance over data submitted late, incomplete or without necessary identification!

Gregor McIntosh  
Salisbury  
May 2005

## **AUDIT RESULTS SUMMARY**

### **BAUS Complex Operations Datasets – January 1<sup>st</sup> – December 31<sup>st</sup> 2004**

#### **Who took part?**

- **401 cystectomies reported by 77 consultants from 50 centres**  
**290 males (75%); 95 females**
- **72% (288/401) of the cystectomy data was returned electronically**
  
- **1443 radical prostatectomies reported by 90 consultants from 55 centres**
- **63.5% (916/1443) of the prostatectomy data was returned electronically**
  
- **1065 nephrectomies reported by 131 consultants from 59 centres**  
**65% males (525/809 recorded)**
- **80% (847/1065) of the nephrectomy data was returned electronically**

Private patients accounted for 3% (12/401) of the cystectomies; 7.3% (106/1443) of the radical prostatectomies and 3.5% (37/1065) of the nephrectomies.

#### **How were the data analysed?**

Information obtained from consultants was entered into the computer database using unique identifying numbers for individual consultants or, if they preferred, a centre number. Two centres returned data under a centre number only (8 consultants in total).

Data could be returned either by completion of pro formas for each patient (858 – 29% of returns) or in electronic format using either an Access (Microsoft) database or “in-house” database (2051 – 71% of returns) designed for the purpose. The pro formas were entered directly into an Access database, at which time validation comprising mainly of checks for duplicate entries and on dates could be carried out. There are separate pro formas for the operation and follow-up information.

The data presented here are a summary of the data received up to 31<sup>st</sup> March 2005 and relate to operations performed during the whole of 2004. Follow-up information was returned on 43% (173/401) of the cystectomies; 38% (543/1443) of the radical prostatectomies and 26% (279/1065) of the nephrectomies. For the purposes of these analyses when more than one follow-up was returned the closest to 90 days from operation was used.

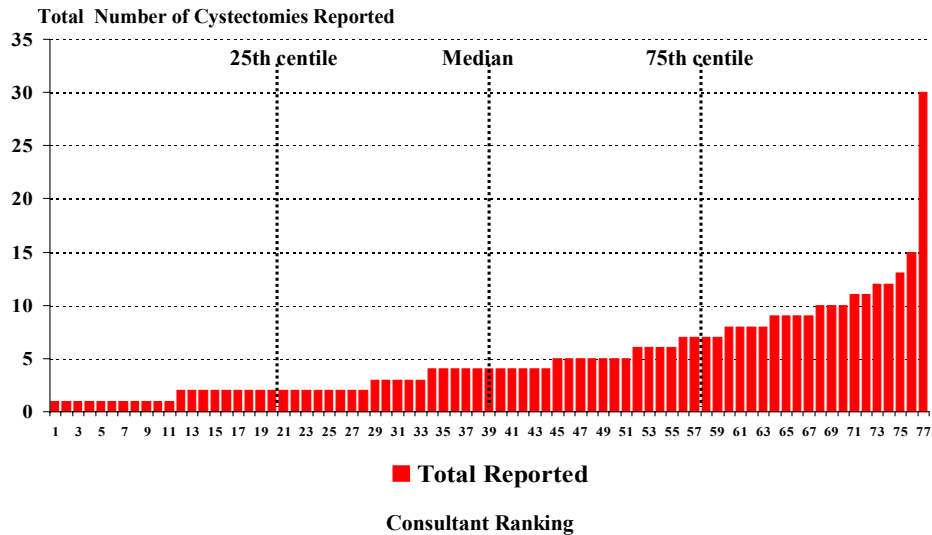
For the ranked charts (1, 2, 21, 22, 43, & 44) the individual consultant or centre identification numbers were removed and replaced with rank numbers starting at 1. A unique, confidential "Ranking Sheet" was prepared for each surgeon to enable them to identify their rank in every chart. For those charts 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 comprise single bars, with in addition the 25, 50, and 75 percentiles 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 for each of the three procedures was issued individually to go with this chartbook.

Sarah Fowler  
BAUS Cancer Registry (BCR) Manager  
May 2005

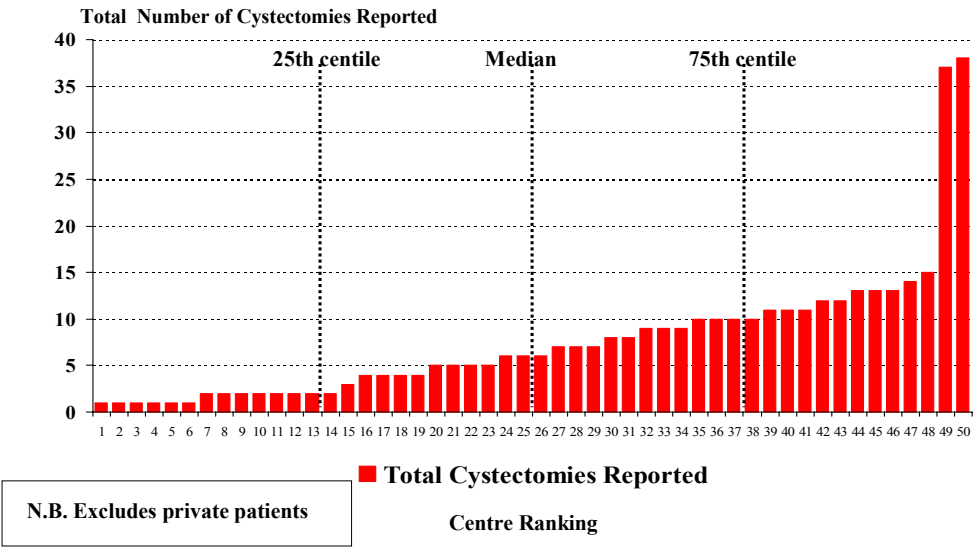
**A. Cystectomies for malignant disease**  
**Chart 1**

**Total Number of Cystectomies Reported per Consultant**  
**Median: 4 (Interquartile Range 2 - 7)**



**Chart 2**

**Total Number of Cystectomies Reported per Centre**  
**Median: 6 (Interquartile Range 2 - 10)**



### Chart 3

#### Indication for Cystectomy

Indication	Number & percentage of total (401)	
	N	%
Muscle invasive TCC	252	62.8
Salvage after Radiotherapy	18	4.5
Uncontrolled superficial disease	36	9.0
Squamous cell ca	15	3.7
Primary CIS	20	5.0
Sarcoma	1	0.3
Gynaecological ca	3	0.8
Primary Adenocarcinoma	7	1.7
Secondary Adenocarcinoma	5	1.3
Other	19	4.7
Not recorded	25	6.2

### Chart 4

#### Cystectomy Pre-operative Clinical Staging Staging could be estimated in 85% (342/401) cases

Known Staging	Total Known	
	N	%
Stage 0a (Ta N0 M0)	7	2.0
Stage 0is (Tis N0 M0)	19	5.6
Stage I (T1 N0 M0)	51	14.9
Stage II (T2a, 2b N0 M0)	157	45.9
Stage III (T3a, 3b, 4a N0 M0)	85	24.9
Stage IV (T4b N0 M0)	23	6.7
Any T N1, N2, N3 M0 Any T any N M1)	including 4 with metastases	1.2

Chart 5

### Cystectomy - Comparison of Pre-operative clinical & pathological Categories

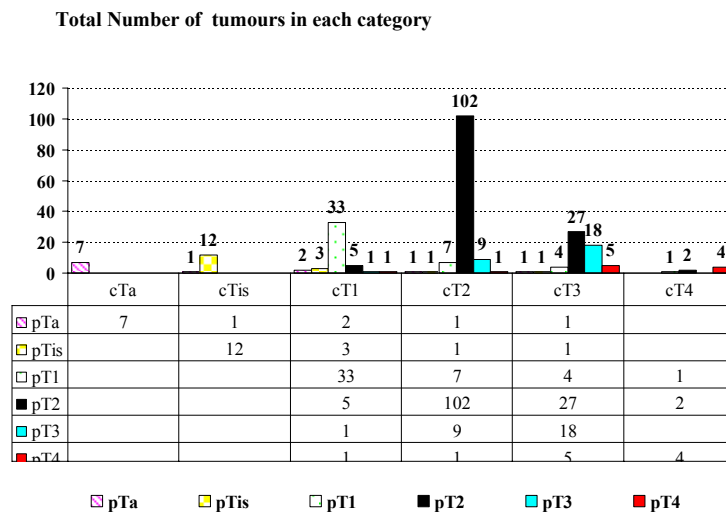
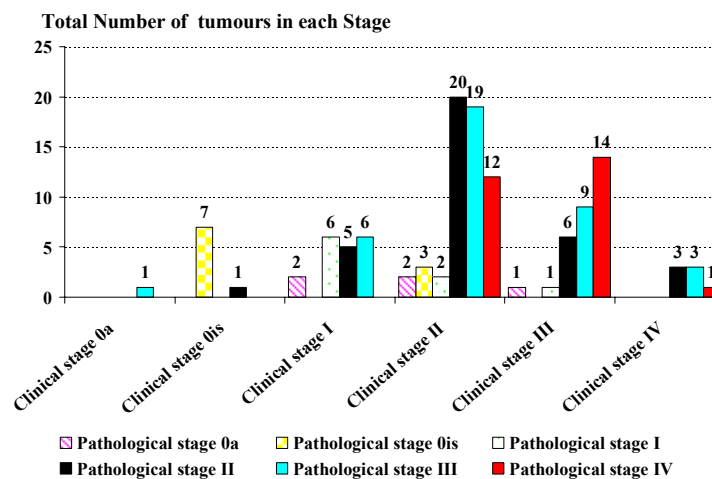


Chart 6

### Cystectomy - Comparison of Pre-operative clinical & Post-operative pathological staging





## Chart 7

**Cystectomy - Pre-operative Imaging**  
Total Numbers Reported with those as only Imaging method in ( )  
Information recorded in 91% cases (366/401)

Imaging Method	N
CT Scan	331 (186)
MRI	50 (16)
Bone Scan	46 (2)
IVU	101 (3)
Others	30 (0)
None	1 (1)

## Chart 8

**Cystectomy - Pre-operative Serum Creatinine**

Serum Creatinine Level $\mu\text{mol}/\text{l}$	N	% of total (401)
0 – 120 $\mu\text{mol}/\text{l}$	274	68.3
121 - 200 $\mu\text{mol}/\text{l}$	60	15.0
> 200 $\mu\text{mol}/\text{l}$	9	2.2
Not recorded	58	14.5

## Chart 9

### Cystectomy - Other Pre-operative findings

	N	% of total reporting
Pre operative Radiotherapy	27 / 358	7.5
Pre operative Neoadjuvant Chemotherapy	30 / 365	8.2
Synchronous Upper tract disease	16 / 354	4.5

## Chart 10

### Cystectomy - Status Upper Tracts

Status	Number & percentage of total reported (401)	
	N	%
Normal	263	65.6
Tumour	8	2.0
Hydronephrosis – left	26	6.5
Hydronephrosis – right	29	7.2
Hydronephrosis – bilateral	21	5.2
Non – functioning kidney	3	7.5
Other	14	3.5
Not recorded	37	9.2

## Chart 11

### Cystectomy Pre-operative Potency

	N	% of total (401)
Impotent	47	11.7
Partially potent	52	13.0
Fully potent	119	29.7
Potency not recorded	183	45.6

## Chart 12

### Cystectomy Pre-operative Continence

	N	% of total (401)
Complete	301	75.1
Minor stress leakage	16	4.0
1 pad per day	6	1.5
> 1 pad per day	10	2.5
Appliance	15	3.7
Continence not recorded	53	13.2

## Chart 13

### Cystectomy Grade of Main Operating Surgeon with numbers & percentage reported as being a supervised training operation

	Total Number	% of total (401)	Supervised training operation	%
Consultant	345	86.0	52/188	27.6
Specialist Registrar	47	11.7	34/44	77.3
Surgeon not recorded	9	2.3	-	-

## Chart 14

### Cystectomy - Diversion procedure 1 laparoscopic procedure was reported 63 combined synchronous urethrectomies 7 combined synchronous nephroureterectomies

	N	% of total (401)
Ileal conduit	350	87.3
Orthotopic	28	7.0
Rectal diversion	0	-
Continent cutaneous diversion	2	0.5
Other	2	0.5
Not recorded	19	4.7

71% (20) of the orthotopics were Studer; 14% (4) ileal; 3.6% (1) Hautmann

## Chart 15

### Cystectomy Lymph Node Dissection

	N	% of total (401)
None	95	23.7
Palpable only	41	10.2
Below bifurcation of common iliac	185	46.1
Extended above bifurcation of common iliac	18	4.5
Not recorded	62	15.5

## Chart 16

### Cystectomies

- **Median duration of operation:**
- **All patients = 270 mins; Range: 130 – 750; (275 patients)**
- **Patients having LND = 280 mins; Range: 130 – 720; (208 patients)**
- **Patients with no LND = 240 mins; Range: 140 – 435; (63 patients)**
- **Median number of units of blood transfused = 2**  
**Range: 0 - 20**  
**(reported in 55% (221) patients)**
- **Median measured blood loss = 1,500 mls**  
**Range: 62 – 15,000**  
**(reported in 67% (269) patients)**
- **Median post-operative stay = 15 days (excluding deaths)**  
**Range: 6 - 140**  
**(reported in 73% (292) patients)**

## Chart 17

### Cystectomies Complications

		N	%
Intra-operative complications:		34/361	9.4
	Bleeding	21/361	5.8
	Other / NR	13/361	3.6
Post-operative complications:		121/332	36.4
	Infections/ Septicaemia	47/332	14.1
	Leaks	7/332	2.1
	Other / NR	67/332	20.2

## Chart 18

### Cystectomy - Significance of Complications

Overall morbidity Rate = 35.2% (141/401)

30 day mortality Rate = 3.2% (13/401)

	Intra-operative		Post-operative	
	N	%	N	%)
No action required	4	11.8	10	8.3
Contributed to death	3	8.8	10	8.3
Delayed discharge	8	23.5	36	29.8
Required medical treatment	3	8.8	40	33.0
Required surgery	6	17.6	20	16.5
Not recorded	10	29.4	5	4.1

## Chart 19

### Cystectomy - Operative Histology reported in 38% (152/401) cases

Histology	Number & percentage of total known (152)	
	N	%
No cancer	13	8.6
Muscle invasive TCC	90	59.2
SCC	7	4.6
Primary CIS	22	14.5
Sarcoma	1	0.7
Gynaecological ca	1	0.7
Primary adenocarcinoma	1	0.7
Secondary adenocarcinoma	3	2.0
Other	14	9.2

## Chart 20

### Cystectomy - Current Status

Follow up recorded in 43% (174/401) patients  
Median time to follow-up = 76 days (range 0 – 289)

	N	% of total (174)
Alive with no evidence of bladder cancer	125	71.8
Alive with local recurrence of bladder cancer	5	2.9
Alive with lymph node involvement	5	2.9
Alive with metastatic disease	2	1.1
Dead	30	17.2
Not recorded	7	4.0

B. Radical prostatectomies

Chart 21

Total Number of Prostatectomies Reported per Consultant  
Median: 11 (Interquartile Range 3 - 22)

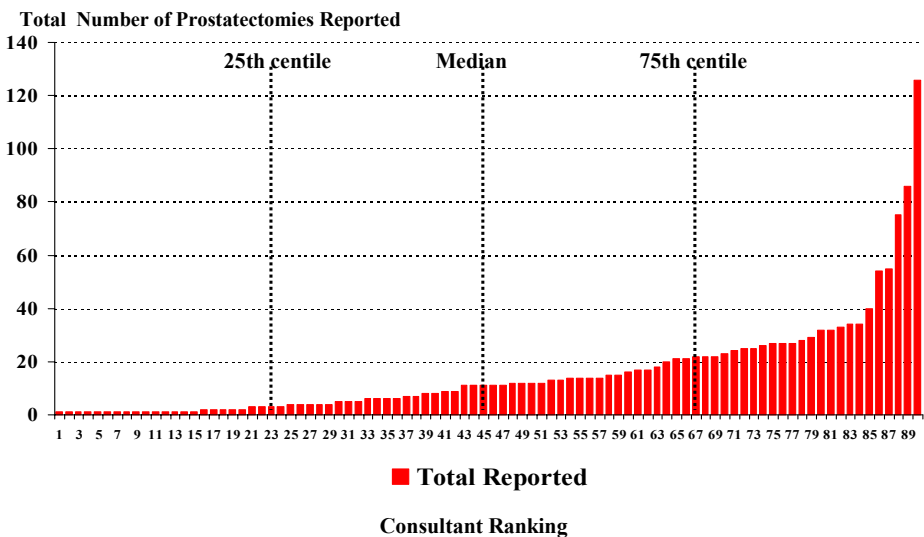
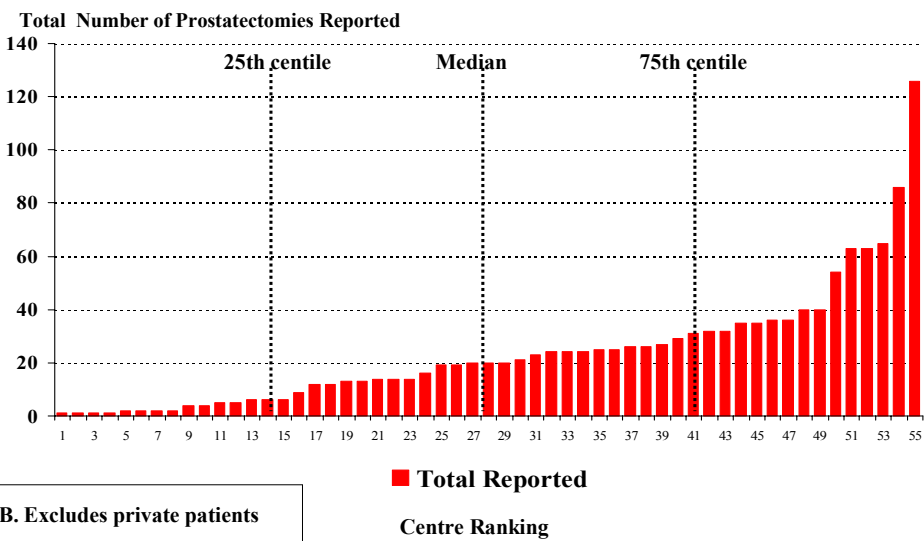


Chart 22

Total Number of Prostatectomies Reported per Centre  
Median: 20 (Interquartile Range 6 - 31)

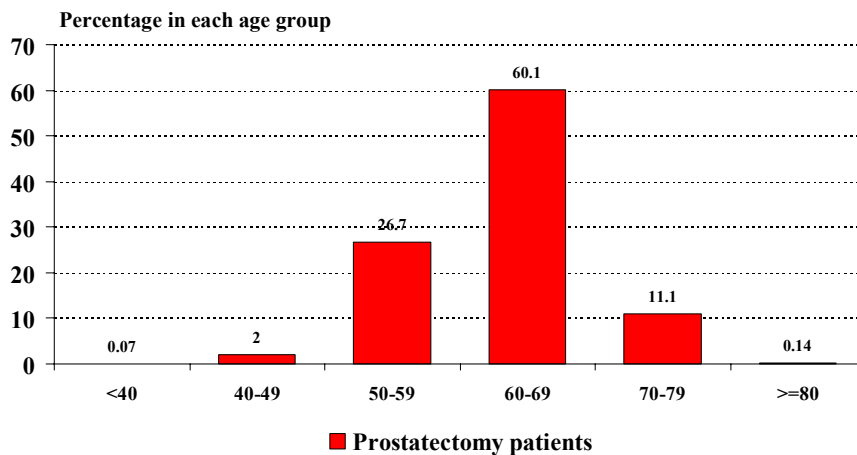




**Chart 23**

### Percentage Age Distribution - Prostatectomies

Median : 63 Years; Range 38 -86 (n= 1,420\*)



Age could be calculated when both date of birth and operation date were recorded = 1420/1433 (98%)

**Chart 24**

### Prostatectomy Presentation

Presentation	N	% of total (1443)
Via Screening or Case Finding	1012	70.1
Other	351	24.3
Not recorded	80	5.6

Other presentation was only recorded in 18% (64/351) cases:

2.1% (30/1443) LUTS

0.5% (7/1443) Protec T

0.2% (3/1443) Salvage

0.2% (3/1443) TURP

7.8% (100/1288) were reported as having had a previous TURP

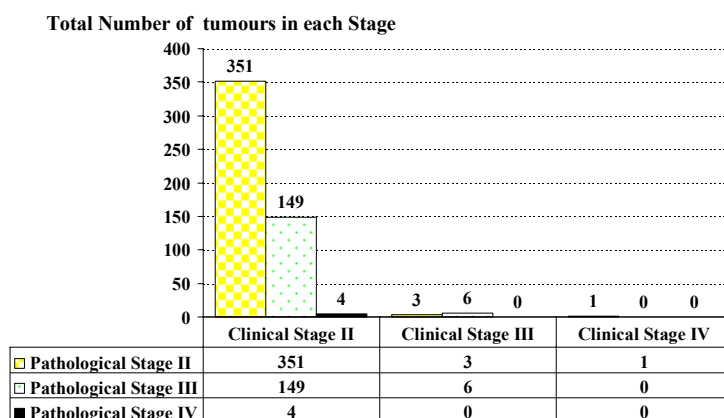
## Chart 25

### Prostatectomy Pre-operative Clinical Staging Staging could be estimated in 94% (1350/1443) cases

Known Staging	Total Known	
	N	%
Stage I (T1a N0 M0)	8	0.6
Stage II (T1b, 1c, 1, 2 N0 M0)	T1 - 137 T1b - 12 T1c- 610 T2 - 555	10.1 0.9 45.2 41.1
Stage III (T3 N0 M0)	27	2.0
Stage IV (T4 N0 M0 Any T N1 M0 Any T any N M1)	2	0.15

## Chart 26

### Prostatectomies Comparison of clinical & pathological staging



## Chart 27

### Staging of Prostate Tumours by PSA

Numbers falling in each category\*

Pre-operative PSA was recorded in 95% patients (1376/1443)

Staging could be estimated in 94% patients (1350/1443)

Known Clinical Staging	Total Patients	PSA 0-5		PSA 6-10		PSA 11-20		PSA 21-50		PSA > 50	
		N	%	N	%	N	%	N	%	N	%
Stage I T1a N0 M0	8	5	1.8	2	0.3	1	0.4	0	0.0	0	0.0
Stage II T1b, 1c, 1, 2, N0 M0	1288	272	97.1	729	97.9	273	96.1	13	86.7	1	100.0
Stage III T3 N0 M0	27	3	1.1	14	1.9	9	3.2	1	6.7	0	0.0
Stage IV T4 N0 M0 Any T N1 M0 Any T Any N M1	2	0	0.0	0	0.0	1	0.4	1	6.7	0	0.0
Totals	1325	280	21.1	745	56.2	284	21.4	15	1.1	1	0.1

## Chart 28

### Gleason Sum Scores by Age Group - Prostatectomies

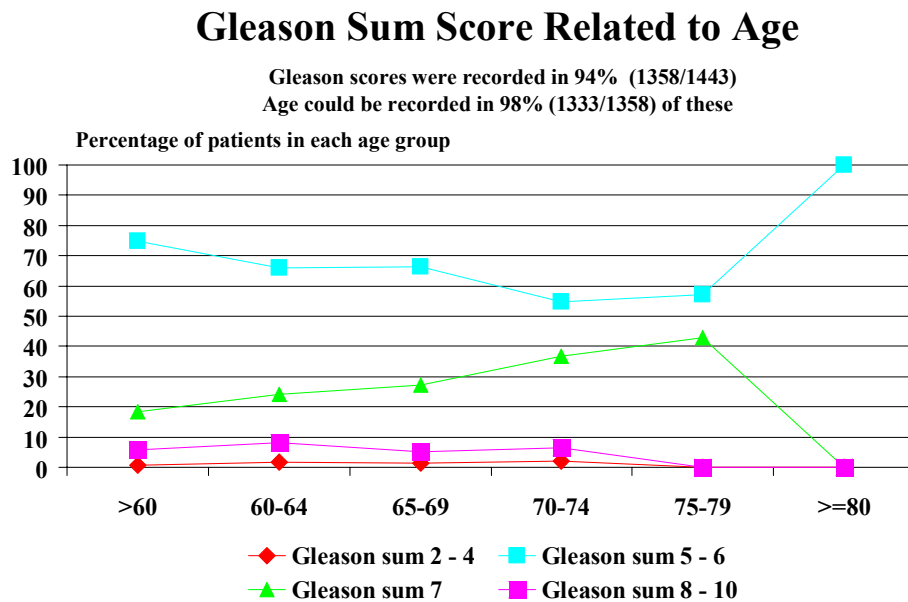
Number falling into each category

Gleason scores were recorded in 94% (1358/1443)

Age could be recorded in 98% (1333/1358) of these

Age Group	Total Patients	Gleason sum 2 – 4		Gleason sum 5 – 6		Gleason sum 7		Gleason sum 8 – 10	
		N	%	N	%	N	%	N	%
< 60	380	3	0.8	285	75.0	70	18.4	22	5.8
60 – 64	434	8	1.8	286	65.9	104	24.0	36	8.3
65 – 69	370	5	1.4	245	66.2	101	27.3	19	5.1
70 – 74	141	3	2.1	77	54.6	52	36.9	9	6.4
75 – 79	7	0	0.0	4	57.1	3	42.9	0	0.0
>=80	1	0	0.0	1	100.0	0	0.0	0	0.0
Totals	1333	19	1.4	898	67.4	330	24.8	86	6.5

**Chart 29**



**Chart 30**

### Prostatectomy Pre-operative Potency

	N	% of total (1443)
Impotent	201	13.9
Partially potent	226	15.7
Fully potent	774	53.6
Potency not recorded	242	16.8

## Chart 31

### Prostatectomy Pre-operative Continence

	N	% of total (1443)
Complete	1247	86.4
Minor stress leakage	26	1.8
1 pad per day	1	0.07
> 1 pad per day	1	0.07
Appliance	2	0.1
Continence not recorded	166	11.5

## Chart 32

### Prostatectomy Grade of Main Operating Surgeon with numbers & percentage reported as being a supervised training operation

	Total Number	% of total (1443)	Supervised training operation	%
Consultant	1260	87.3	103/606	17.0
Specialist Registrar	120	8.3	111/117	94.9
Surgeon not recorded	63	4.4	-	-

### Chart 33

#### Prostatectomy - Procedure Nerve sparing

Nerve Sparing	N	% of total (1443)
Bilateral	628	43.5
Unilateral	216	15.0
None	439	30.4
Not recorded	160	11.1

### Chart 34

#### Prostatectomy Procedure - Approach

	N	% of total (1443)
Retropubic	1009	69.9
Perineal	46	3.2
Other	10	0.7
Not recorded	378	26.2

## Chart 35

### Prostatectomy Procedure – Laparoscopic Conversion rate = 3.2% (8/251)\*

Laparoscopic	N	% of total (1443)
Yes	251	17.4
No	732	50.7
Not recorded	460	31.9

\* **Conversion reasons**

- 3 due to failure to progress
- 1 unable to form anastomosis
- 1 poor views
- 3 not recorded

## Chart 36

### Prostatectomies

- 45.3% had Lymph Node dissection (584/1290 patients)
- Median duration of operation:
- All patients = 160 mins; Range: 60 - 540; (1191 patients)
- Patients having LND = 160 mins; Range: 60 - 370; (521 patients)
- Patients with no LND = 160 mins; Range: 60 – 540; (609 patients)
- Median number of units of blood transfused = 0  
Range: 0 - 14  
(reported in 84% (1210) patients)
- Median measured blood loss = 850 mls  
Range: 10 – 10,000  
(reported in 78% (1132) patients)
- Median post-operative stay = 4 days (excluding deaths)  
Range: 0 - 74  
(reported in 85% (1223) patients)

## Chart 37

### Prostatectomies - Procedure

	Procedure	N	Median	Range
<b>Duration of Operation (mins)</b>	Total patients	1191	160	60 – 540
	Retropubic	881	160	60 – 410
	Perineal	28	125	90 – 480
	Laparoscopic	217	180	90 – 540
<b>Units of Blood Transfused</b>	Total patients	1210	0	0 – 14
	Retropubic	895	0	0 – 14
	Perineal	40	0	0 – 3
	Laparoscopic	196	0	0 – 4
<b>Measured Blood Loss (mls)</b>	Total patients	1132	850	10 – 10,000
	Retropubic	879	900	10 – 10,000
	Perineal	27	800	100 – 3,000
	Laparoscopic	202	250	10 – 3,500
<b>Post –op Length of Stay (days)</b>	Total patients	1223	4	0 – 74
	Retropubic	856	4	0 – 64
	Perineal	41	4	2 – 15
	Laparoscopic	229	3	0 – 34

## Chart 38

### Prostatectomies Complications

		N	%
<b>Intra-operative complications:</b>		81/1357	6.0
	Bleeding	29/1357	2.1
	Rectal Injury	14/1357	1.0
	Racquet handle broke	1/1357	.07
	Other / NR	37/1357	2.7
<b>Post-operative complications:</b>		185/1305	14.2
	Leaks	33/1305	2.5
	Wound Infection	22/1305	1.7
	Chest Infection	10/1305	0.8
	Haematoma	5/1305	0.4
	Lymphocele	5/1305	0.4
	Urinary Retention	4/1305	0.3
	MI	4/1305	0.3
	Other / NR	83/1305	6.4



## Chart 39

### Prostatectomy - Significance of Complications

Overall morbidity Rate = 16.5% (238/1443)

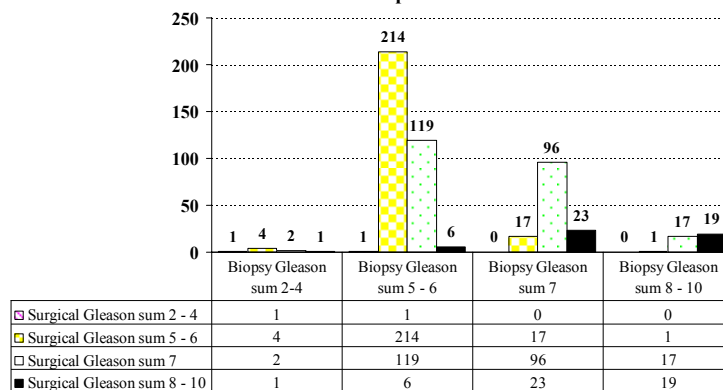
30 day mortality Rate = 0.3% (5/1443)

	Intra-operative		Post-operative	
	N	%	N	%
No action required	25	30.5	31	16.7
Contributed to death	0	-	1	0.5
Delayed discharge	15	18.3	57	30.6
Required medical treatment	7	8.5	68	36.6
Required surgery	7	8.5	15	8.1
Not recorded	28	34.1	14	7.5

## Chart 40

### Prostatectomies Comparison of Pre-operative Biopsy and Operative Surgical Gleason Sum Scores

Total Number of tumours in each Group



## Chart 41

### Prostatectomy Pathology

	N	% of total known
Known Lymph Node Involvement	4/275	1.5
Known Seminal Vesical Involvement	45/515	8.7

## Chart 42

### Prostatectomy - Current Status

Follow up recorded in 37.6% (543/1443) patients  
Median time to follow-up = 86 days (range 12 – 373)

	N	% of total (543)
Alive with no evidence of prostate cancer	470	86.5
Alive with local recurrence of prostate cancer	12	2.2
Alive with lymph node involvement	0	-
Alive with metastatic disease	2	0.4
Dead	0	-
Not recorded	59	10.9

C. Nephrectomies

Chart 43

Total Number of Nephrectomies Reported per Consultant  
Median: 5 (Interquartile Range 1 - 47)

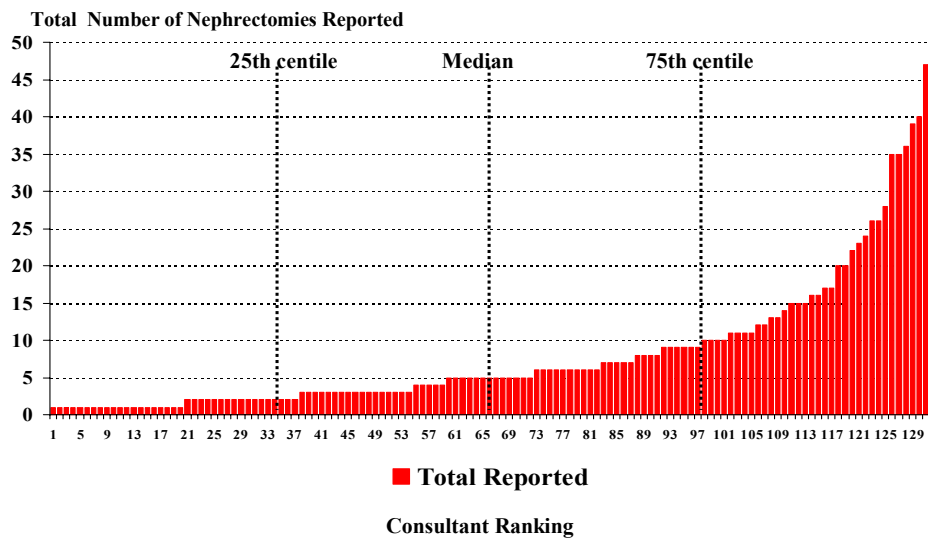
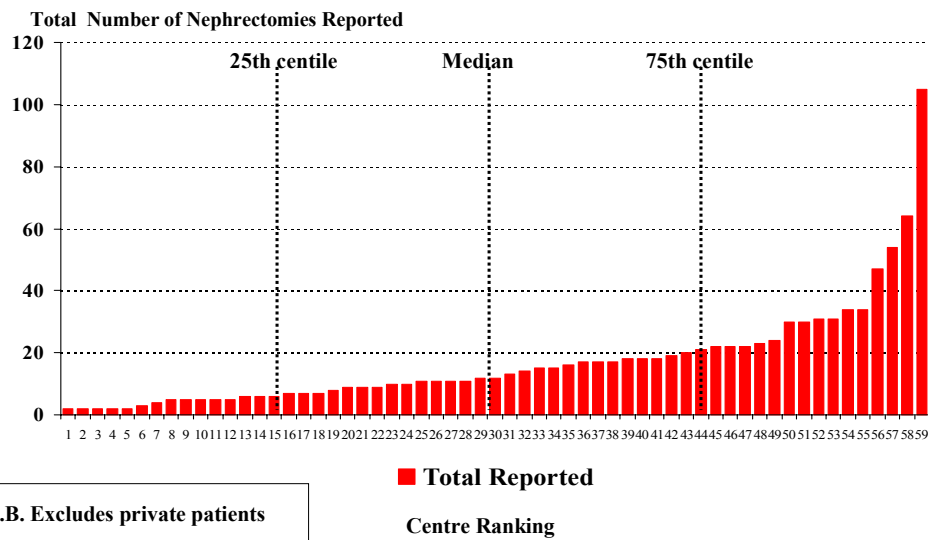


Chart 44

Total Number of Nephrectomies Reported per Centre  
Median: 12 (Interquartile Range 2 - 105)



N.B. Excludes private patients

## Chart 45

### Nephrectomy - Pre-operative presentation

	N	% of total (1065)
Incidental finding with no symptoms	332	31.2
Other:	609	57.2
Haematuria	297	27.9
Pain	105	9.9
TCC bladder	16	1.5
UTI	15	1.4
Anaemia	13	1.2
Weight loss	11	1.0
Mass	10	0.9
Other/Not recorded	142	13.3
Not recorded	124	11.6

## Chart 46

N.B. The figures in this chart need to be regarded with caution since we were not precise enough with the units in which we wanted the figures recorded. This will be rectified from Janaury 2006.

### Nephrectomies– Haematology at Presentation

	N	Median	Range
Hb (g/L)	778	130	20– 193
Total WBC (* 10 <sup>9</sup> / L)	762	8	2 – 71
Neutrophils (* 10 <sup>9</sup> / L)	723	5	0 - 83
Lymphocytes (* 10 <sup>9</sup> / L)	475	2	0 – 89
Platelets (* 10 <sup>9</sup> / L)	751	274	0 – 707,000

## Chart 47

### Nephrectomy - Pre-operative Serum Creatinine

Serum Creatinine Level $\mu\text{mol}/\text{l}$	N	% of total (1065)
0 – 120 $\mu\text{mol}/\text{l}$	744	69.9
121 - 200 $\mu\text{mol}/\text{l}$	173	16.2
> 200 $\mu\text{mol}/\text{l}$	23	2.2
Not recorded	125	11.7

## Chart 48

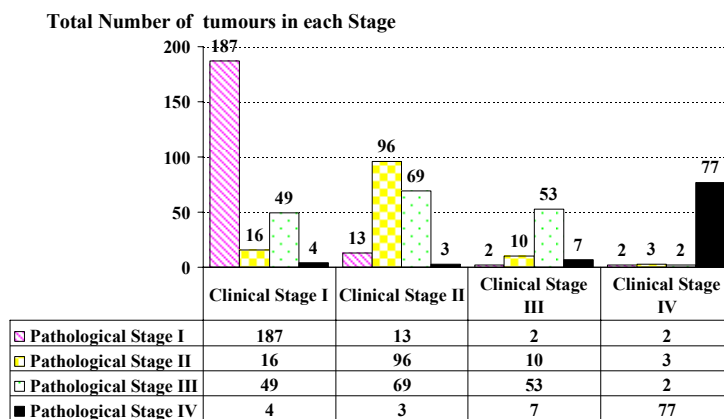
### Nephrectomy Pre-operative Clinical Staging Staging could be estimated in 75% (803/1065) cases

Known Staging	Total Known N	%
Stage I (T1 N0 M0)	349	43.5
Stage II (T2 N0 M0)	227	28.3
Stage III (T1, T2, T3 N0, N1 M0)	113	14.1
Stage IV (T4 N0, N1 M0 Any T N2 M0 Any T any N M1)	114 including 96 with metastases	14.2 12.0

6.7% (64/952) patients were reported as having a pre-operative biopsy

**Chart 49**

### Nephrectomies Comparison of clinical & pathological staging



**Chart 50**

### Nephrectomy Grade of Main Operating Surgeon with numbers & percentage reported as being a supervised training operation

	Total Number	% of total (1065)	Supervised training operation	%
Consultant	840	78.9	84/457	18.4
Specialist Registrar	202	19.0	195/198	98.5
Other / Not recorded	23	2.1	8/9	88.8

## Chart 51

### Nephrectomy – Procedure

The vena cava was reported as being explored in 7.3% (56/764) cases  
75.6% (31/41) Infra-diaphragmatically; 24.4% (10/41) Supra-diaphragmatically

	N	% of total (1065)
Radical Nephrectomy	751	70.5
Bilateral Radical Nephrectomy	2	0.2
Partial Nephrectomy	70	6.6
Simple Nephrectomy	23	2.2
Nephroureterectomy	192	18.0
Other	5	0.5
Not Recorded	22	2.1

## Chart 52

### Nephrectomies – Surgical Approach

Known Laparoscopic Conversion rate = 17.3% (35/202)\*

Approach	N	% of total (1065)
Open	841	79.0
Laparoscopic	224	21.0

#### \* Conversion reasons

- 13 due to bleeding
- 6 due to failure to progress
- 2 due to position of tumour
- 1 ruptured spleen
- 1 poor view
- 13 other / not recorded

## Chart 53

### Nephrectomy Approach by Pre-operative Clinical Staging Staging could be estimated in 75% (803/1065) cases

Known Staging	Total N	Open N	%	Laparoscopic N	%
Stage I (T1 N0 M0)	349	227	65.0	122	35.0
Stage II (T2 N0 M0)	227	209	92.1	18	7.9
Stage III (T1, T2, T3 N0, N1 M0)	113	106	93.8	7	6.2
Stage IV (T4 N0, N1 M0 Any T N2 M0 Any T any N M1)	114	104	91.2	10	8.8

## Chart 54

### Nephrectomies

- 14.1% had Lymph Node dissection (133/941 patients)
- Median duration of operation = 150 minutes  
Range: 40 - 850  
(reported in 76% (806) patients)
- Median number of units of blood transfused = 0  
Range: 0 - 150  
(reported in 79% (837) patients)
- Median measured blood loss = 300 mls  
Range: 0 - 11,000  
(reported in 69% (737) patients)
- Median post-operative stay = 7 days (excluding deaths)  
Range: 0 - 189  
(reported in 83% (879) patients)



## Chart 55

### Nephrectomies - Procedure

	Procedure	N	Median	Range
Duration of Operation (mins)	Total patients	806	150	40 – 850
	Open	613	150	40 – 850
	Laparoscopic	193	190	75 – 480
	LND	110	180	60 – 480
Units of Blood Transfused	Total patients	837	0	0 – 150
	Open	648	0	0 – 150
	Laparoscopic	189	0	0 – 33
Measured Blood Loss (mls)	Total patients	737	300	0 – 11,000
	Open	547	400	0 – 11,000
	Laparoscopic	190	120	0 – 8,100
Post –op Length of Stay (days)	Total patients	879	7	1 – 189
	Open	673	8	2 – 189
	Laparoscopic	206	5	1 – 46

## Chart 56

### Nephrectomies Complications

		N	%
Intra-operative complications:		102/952	10.7
	Bleeding	44/952	4.6
	Required splenectomy	7/952	0.7
	MI	5/952	0.5
	Other / NR	46/952	4.8
Post-operative complications:		178/899	19.8
	Wound Infection	17/899	1.9
	Ileus	8/899	0.9
	Bleeding	6/899	0.7
	Haematoma	5/899	0.6
	Respiratory failure	4/899	0.4
	UTI	3/899	0.3
	Hypertension	3/899	0.3
	Urinary Retention	3/899	0.3
	Other / NR	129/899	14.3

## Chart 57

### Nephrectomy - Significance of Complications

Overall morbidity Rate = 23.0% (245/1065)

30 day mortality Rate = 1.8% (19/1065)

	Intra-operative		Post-operative	
	N	%	N	%
No action required	24	23.5	24	13.5
Contributed to death	6	5.9	12	6.7
Delayed discharge	10	9.8	50	28.1
Required medical treatment	16	15.6	67	37.6
Required surgery	14	13.7	20	11.2
Not recorded	32	31.4	5	2.8

## Chart 58

### Nephrectomies – Pathology

Predominant Cell Type	N	% of total reported (733)
RCC	515	70.3
TCC	147	20.0
Papillary (Chromophil); Collecting duct	51	7.0
Oncocytoma	8	1.1
Other	12	1.6

- Median diameter of tumour = 6 cm; Range: 0.14 – 23 ; (size reported in 65% (692) patients)
- Necrosis reported as present in 32% patients (155/485)
- 133 patients reported with venous invasion (65 minor veins; 68 major veins)
- 637 patients had margins reported; 10% were positive (64/637)

## Chart 59

**Nephrectomy - Current Status**  
Follow up recorded in 26.2% (279/1065) patients  
Median time to follow-up = 74 days (range 13 – 429)

	N	% of total (279)
Alive with no evidence of renal cancer	220	78.9
Alive with local recurrence of renal cancer	4	1.4
Alive with lymph node involvement	4	1.4
Alive with metastatic disease	27	9.7
Dead	5	1.8
Not recorded	19	6.8