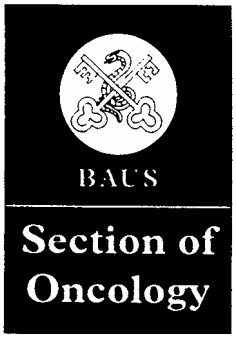



# THE BRITISH ASSOCIATION OF UROLOGICAL SURGEONS

# SECTION of ONCOLOGY

**BAUS Cancer Registry**
**Analyses of Complex Operations**
**January 1st – 31st December 2008**

**May 2009**

**MEMBERS OF THE EXECUTIVE COMMITTEE**

| | | | |
|---|---|---|---|
| M Aitchison | G Boustead | J Crew | D R Greene |
| R C Kocklebergh | G S McIntosh | R A Persad | S Prescott |
| V Srinivasin | K S Swami | | |

**PRODUCED FOR BAUS SECTION OF ONCOLOGY**
**by**

**Mrs Sarah Fowler**
**BAUS Cancer Registry Manager**

# CONTENTS


| | Page Number |
|---|---|
| **Introduction** | **1** |
| **Results Summary & Methods of analysis** | **2** |
| **A. Cystectomies**<br>**Charts 1 – 24** | **3** |
| **B. Radical Prostatectomies**<br>**Charts 25 – 50** | **15** |
| **C. Nephrectomies**<br>**Charts 51 – 72** | **28** |
| **D. Participating Hospital Centres** | **39** |

## Introduction

It is once again a pleasure to introduce this analysis of the Complex Urological Operations carried out in 2008, although this will be the last year I write this as I am handing over this responsibility to another executive committee member.
Our data for 2008 is a mixed picture with an increased number of operations being reported for cystectomy and nephrectomy, but fewer prostatectomies in comparison to the preceding year.

Despite the centralisation of much urological cancer surgery in England there remain a number of surgeons carrying out low numbers of both cystectomy and radical prostatectomy procedures. Fifty five or 4.8% of the total of 1156 prostatectomies were done by surgeons operating on less than five cases per year. Seventy two (13.3%) of the cystectomy operations are carried out by such surgeons. Despite this the reported 30 day mortality is extremely low with only 3 patients (0.6%) dying within that period. Could / will this figure be improved by more rigid enforcement of the guidance for reducing the number of "low volume" surgeons?

Laparoscopic surgery is becoming more widely reported with 43% of Nephrectomies, 36% of prostatectomies and 10% of cystectomies being carried out by this technique. The conversion rates are low and the resultant benefits being less blood loss, negligible transfusion requirements and shorter post operative length of stay.

The number of patients undergoing extended lymph node dissection (above the iliac artery bifurcation) during cystectomy has increased to 21% this year. It will be of interest to see if this is associated with an improved prognosis in the long term along with the 28% of cystectomy patients receiving neo-adjuvant systemic chemotherapy. Unfortunately I suspect that we will not be able to find the answer from our BAUS Cancer registry data as the follow-up data reporting is very poor with only 17.6% of cystectomy patients having such data submitted. There are similarly low levels for nephrectomy (15%) but a greater rate of 33% for prostatectomy. Ever the optimist , I hope that with the forthcoming web-based data submission and the greater need for outcome data for Recertification and thus Revalidation, the rate of data returns will increase.

It has been a great pleasure to be involved with the BAUS Cancer Registry and the Complex Operations Audit over the last few years and to be part of the Executive Committee of the Section of Oncology. We all owe a great debt to Sarah Fowler our database manager for her diligence for these many years.

Gregor McIntosh
Salisbury
May 2009

## Audit Results Summary
## BAUS Complex Operations Datasets – January 1st – December 31st 2008

- **541 cystectomies reported by 68 consultants from 43 centres**
- **73% males (388/530 recorded)**

- **85% (460/541) of the cystectomy data was returned electronically**

- **1156 prostatectomies reported by 84 consultants from 52 centres**

- **75% (866/1156) of the prostatectomy data was returned electronically**

- **1692 nephrectomies reported by 148 consultants from 74 centres**
- **61% males (1029/1677 recorded)**

- **93% (1580/1692) of the nephrectomy data was returned electronically**

Private patients accounted for 1.3% (7/541) of the cystectomies; 2.5% (29/1156) of the radical prostatectomies and 1.2% (21/1692) 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. Four centres returned data under a centre number only (13 consultants in total).

Data could be returned either by completion of pro formas for each patient (483 – 14.3% of returns) or in electronic format using either an Access (Microsoft) database or "in-house" database (2906 – 85.7% 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 24th April 2009 and relate to operations performed during the whole of 2008. Follow-up information was returned on 17.6% (95/541) of the cystectomies; 33.8% (391/1156) of the radical prostatectomies and 15.8% (266/1692) of the nephrectomies.

For the ranked charts (1, 2, 21, 22, 25, 26, 47, 48, 51, 52, 69 & 70) 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 charts comprise single bars ranked from left to right in the ascending order of the data item being measured with, in addition, the 25, 50, and 75 percentiles. Where percentages are included figures have been rounded up to one decimal point.

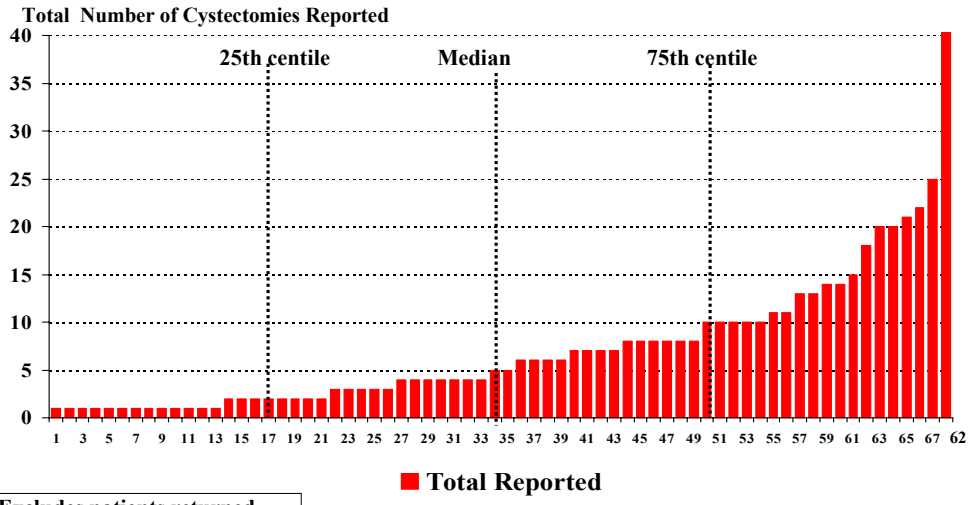
A personal ranking sheet for each consultant for each of the three procedures was issued individually to go with this chart book.

Sarah Fowler
BAUS Cancer Registry (BCR) Manager
May 2009

## A. Cystectomies for malignant disease

## Chart 1

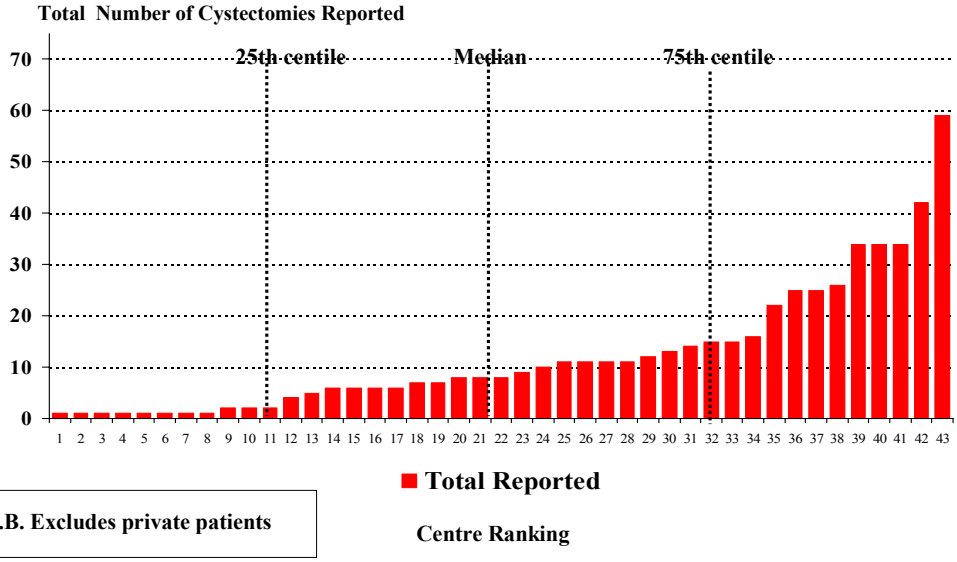
**Total Number of Cystectomies Reported per Consultant**
**Median: 5 (Interquartile Range 2 - 10)**




N.B. Excludes patients returned under Centre number only

## Chart 2

**Total Number of Cystectomies Reported per Centre**
**Median: 8 (Interquartile Range 2 - 15)**




N.B. Excludes private patients

## Chart 3

### Indication for Cystectomy

| Indication | Number & percentage of total (541) | |
|---|---|---|
| | N | % |
| Muscle invasive TCC | 301 | 55.6 |
| Salvage after Radiotherapy | 24 | 4.4 |
| Uncontrolled superficial disease | 68 | 12.6 |
| Squamous cell ca | 17 | 3.1 |
| Primary CIS | 27 | 5.0 |
| Sarcoma | 0 | - |
| Gynaecological ca | 6 | 1.1 |
| Primary Adenocarcinoma | 9 | 1.7 |
| Secondary Adenocarcinoma | 3 | 0.6 |
| Other | 39 | 7.2 |
| Not recorded | 47 | 8.7 |

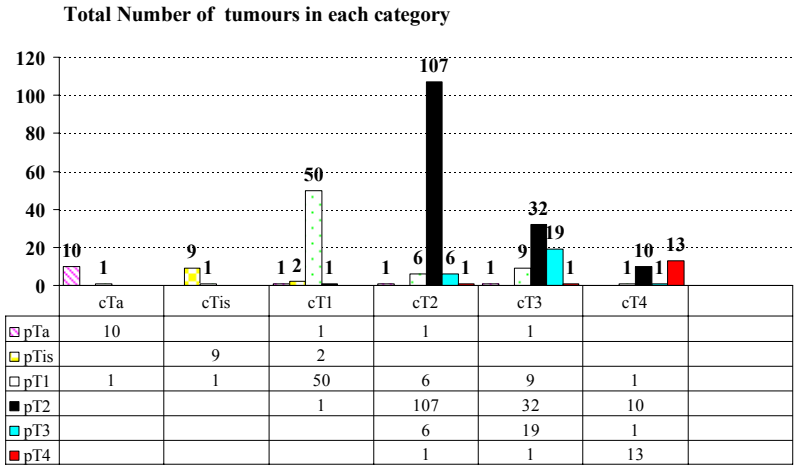
## Chart 4

### Cystectomy Pre-operative Clinical Staging
### Staging could be estimated in 79.9% (432/541) cases

| Known Staging | Total Known N | % |
|---|---|---|
| Stage 0a (Ta N0 M0) | 12 | 2.8 |
| Stage 0is (Tis N0 M0) | 21 | 4.9 |
| Stage I (T1 N0 M0) | 74 | 17.1 |
| Stage II (T2a, 2b N0 M0) | 181 | 41.9 |
| Stage III (T3a, 3b, 4a N0 M0) | 120 | 27.8 |
| Stage IV (T4b N0 M0 Any T N1, N2, N3 M0 Any T any N M1) | 24 including 3 with metastases | 5.6 0.7 |

## Chart 5

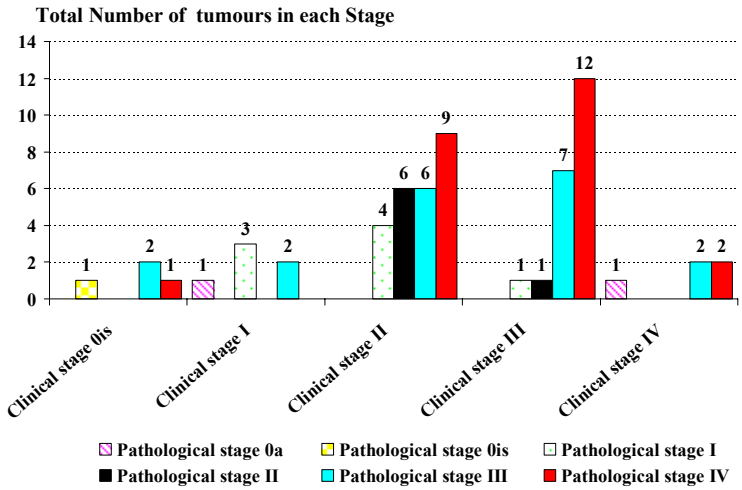
### Cystectomy - Comparison of Pre-operative clinical & pathological Categories




| | cTa | cTis | cT1 | cT2 | cT3 | cT4 |
|---|---|---|---|---|---|---|
| pTa | 10 | | 1 | 1 | 1 | |
| pTis | | 9 | 2 | | | |
| pT1 | 1 | 1 | 50 | 6 | 9 | 1 |
| pT2 | | | 1 | 107 | 32 | 10 |
| pT3 | | | | 6 | 19 | 1 |
| pT4 | | | | 1 | 1 | 13 |

## 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 88.5% cases (479/541)**

| Imaging Method | N |
|---|---|
| CT Scan | 436 (229) |
| MRI | 147 (16) |
| Bone Scan | 79 (0) |
| IVU | 58 (1) |
| Others | 37 (1) |
| None | 14 (14) |

## Chart 8

### Cystectomy - Pre-operative Serum Creatinine

| Serum Creatinine Level µmols/l | N | *% of total (541)* |
|---|---|---|
| 0 – 120 µmols/l | 345 | *63.8* |
| 121 - 200 µmols/l | 70 | *12.9* |
| > 200 µmols/l | 9 | *1.7* |
| Not recorded | 117 | *21.6* |

## Chart 9

### Cystectomy - Other Pre-operative findings

| | N | *% of total reporting* |
|---|---|---|
| **Pre operative Radiotherapy** | **36/454** | ***7.9*** |
| **Pre operative Neoadjuvant Chemotherapy** | **134/473** | ***28.3*** |
| **Synchronous Upper tract disease** | **21/454** | ***4.6*** |

## Chart 10

### Cystectomy - Status Upper Tracts

| **Status** | **Number & percentage of total reported (541)** | |
|---|---|---|
| | **N** | **%** |
| **Normal** | **315** | ***58.2*** |
| **Tumour** | **13** | ***2.4*** |
| **Hydronephrosis – left** | **44** | ***8.1*** |
| **Hydronephrosis – right** | **30** | ***5.5*** |
| **Hydronephosis – bilateral** | **24** | ***4.4*** |
| **Non – functioning kidney** | **6** | ***1.1*** |
| **Other** | **14** | ***2.6*** |
| **Not recorded** | **95** | ***17.6*** |

## Chart 11

### Cystectomy Pre-operative Potency

| | N | *% of total (541)* |
|---|---|---|
| **Impotent** | **66** | ***12.2*** |
| **Partially potent** | **59** | ***10.9*** |
| **Fully potent** | **119** | ***22.0*** |
| **Potency not recorded** | **297** | ***54.9*** |

## Chart 12

### Cystectomy Pre-operative Continence

| | N | *% of total (541)* |
|---|---|---|
| **Complete** | **354** | ***65.4*** |
| **Minor stress leakage** | **17** | ***3.1*** |
| **1 pad per day** | **4** | ***0.7*** |
| **> 1 pad per day** | **6** | ***1.1*** |
| **Appliance** | **3** | ***0.6*** |
| **Continence not recorded** | **157** | ***29.0*** |

## Chart 13

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

| | Total Number | *% of total (541)* | Supervised training operation | *%* |
|---|---|---|---|---|
| **Consultant** | **478** | ***88.4*** | **155/320** | ***48.4*** |
| **Specialist Registrar** | **34** | ***6.3*** | **27/28** | ***96.0*** |
| **Other** | **18** | ***3.3*** | **0/18** | ***0*** |
| **Surgeon not recorded** | **11** | ***2.0*** | **-** | **-** |

## Chart 14

### Cystectomy - Diversion procedure
**54 laparoscopic procedures were reported**
**100 combined synchronous urethrectomies**
**16 combined synchronous nephroureterctomies**

| | N | *% of total (541)* |
|---|---|---|
| **Ileal conduit** | **451** | ***83.4*** |
| **Orthotopic** | **31** | ***5.7*** |
| **Rectal diversion** | **0** | **-** |
| **Continent cutaneous diversion** | **5** | ***0.9*** |
| **Other** | **1** | ***0.2*** |
| **Not recorded** | **53** | ***9.8*** |

67.7% (21/31) of the orthotopics were Studer

## Chart 15

### Cystectomy Lymph Node Dissection

| | N | *% of total (541)* |
|---|---|---|
| **None** | **83** | ***15.3*** |
| **Palpable only** | **44** | ***8.1*** |
| **Below bifurcation of common iliac** | **243** | ***44.9*** |
| **Extended above bifurcation of common iliac** | **114** | ***21.1*** |
| **Not recorded** | **57** | ***10.5*** |

## Chart 16

### Cystectomies

- **Median duration of operation:**

- **All patients = 300 mins; Range: 60 – 870; (442 patients)**
- **Patients having LND = 300 mins; Range: 120 – 870; (351 patients)**
  **Patients with no LND = 270 mins; Range: 60 – 550; (56 patients)**

- **Median number of units of blood transfused = 0**
  **Range: 0 - 25**
  **(reported in 68.6% (377) patients)**

- **Median measured blood loss = 1,000 mls**
  **Range: 0 – 24,500**
  **(reported in 74.7% (404) patients)**

- **Median post-operative stay = 13 days (excluding deaths)**
  **Range: 0 - 168**
  **(reported in 82.2% (445) patients)**

## Chart 17

### Cystectomies Complications

| | | N | % |
|---|---|---|---|
| Intra-operative complications: | | 35/494 | *7.1* |
| | Bleeding | 8/494 | *1.6* |
| | Rectal Injury | 9/494 | *1.8* |
| | Iliac vein injury | 4/494 | *0.8* |
| | Other / NR | 14/494 | *2.8* |
| Post-operative complications: | | 132/449 | *29.4* |
| | Infections/ Septicaemia | 42/449 | *9.4* |
| | Prolonged Ileus | 23/449 | *5.1* |
| | Leaks | 10/449 | *2.2* |
| | Other / NR | 57/449 | *12.7* |

## Chart 18

### Cystectomy - Significance of Complications
**Overall morbidity Rate = 27.5% (149/541)**
**30 day mortality Rate = 0.6% (3/541)**

| | Intra-operative | | Post-operative | |
|---|---|---|---|---|
| | N | % | N | % |
| No action required | 8 | *22.9* | 8 | *6.1* |
| Contributed to death | 0 | - | 5 | *3.8* |
| Delayed discharge | 4 | *11.4* | 45 | *34.1* |
| Required medical treatment | 5 | *14.3* | 45 | *34.1* |
| Required surgery | 11 | *31.4* | 22 | *16.7* |
| Not recorded | 7 | *20.0* | 7 | *5.3* |

## Chart 19

### Cystectomy - Operative Histology reported in 23.5% (127/541) cases

| Histology | Number & percentage of total known (127) | |
|---|---|---|
| | N | % |
| No cancer | 22 | 17.3 |
| Muscle invasive TCC | 67 | 52.8 |
| SCC | 3 | 2.4 |
| Primary CIS | 10 | 7.9 |
| Sarcoma | 1 | 0.8 |
| Gynaecological ca | 0 | - |
| Primary adenocarcinoma | 2 | 1.6 |
| Secondary adenocarcinoma | 1 | 0.8 |
| Other | 21 | 16.5 |

## Chart 20

### Cystectomy Follow ups

**Follow up recorded in 17.6% (95 / 541) patients**

**Median time to latest Follow-up = 68 days; range 17 – 365 days**

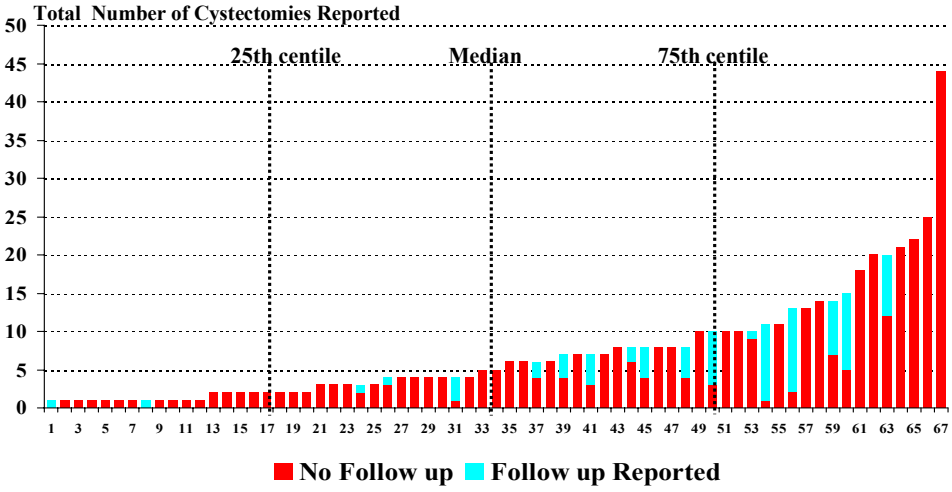
**Median number of Follow-ups = 0; Range: 0 - 3**

**Time to latest follow-up:**

| Time from Operation to follow-up | N | % of total (95) |
|---|---|---|
| 0 – 90 days | 61 | 64.2 |
| 91 – 180 days | 20 | 21.1 |
| 181 – 360 days | 13 | 13.7 |
| >=361 days | 1 | 1.1 |

## Chart 21

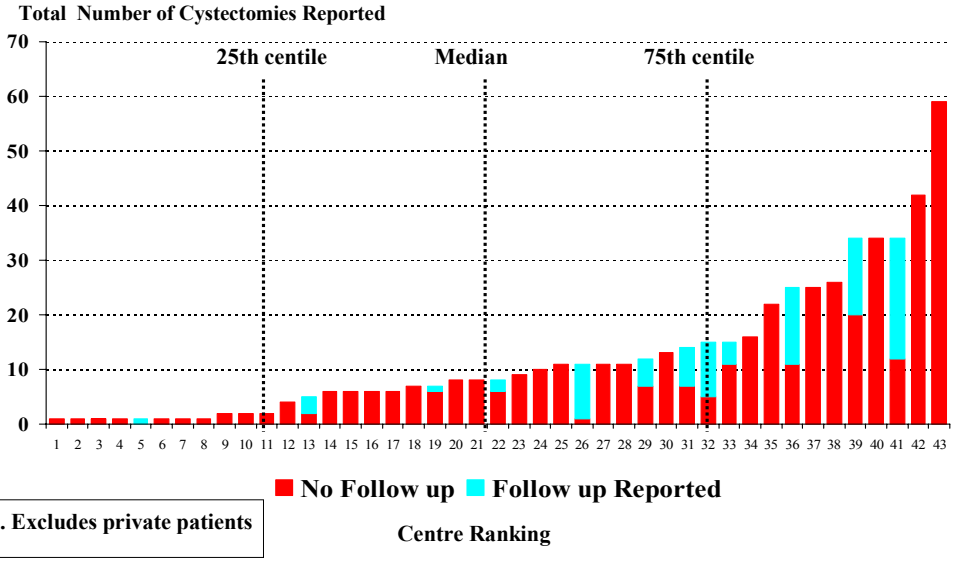
**Total Number of Cystectomies Reported per Consultant**
**Including number with follow-ups**
**Follow up recorded in 17.6% (95 / 541) patients**




N.B. Excludes patients returned under Centre number only

## Chart 22

**Total Number of Cystectomies Reported per Centre**
**Including number with follow-ups**
**Follow up recorded in 17.6% (95 / 541) patients**




N.B. Excludes private patients

## Chart 23

### Cystectomy - Current Status
**Follow up recorded in 17.6% (95 / 541) patients**
**Median time to latest Follow-up = 68 days; range 17 – 365 days**

| | N | *% of total (95)* |
|---|---|---|
| **Alive with no evidence of bladder cancer** | **76** | ***80.0*** |
| **Alive with local recurrence of bladder cancer** | **1** | ***1.1*** |
| **Alive with lymph node involvement** | **5** | ***5.3*** |
| **Alive with metastatic disease** | **1** | ***1.1*** |
| **Dead** | **5** | ***5.3*** |
| **Not recorded** | **7** | ***7.4*** |

Late complications were reported in 11/95 (11.6%) patients

## Chart 24

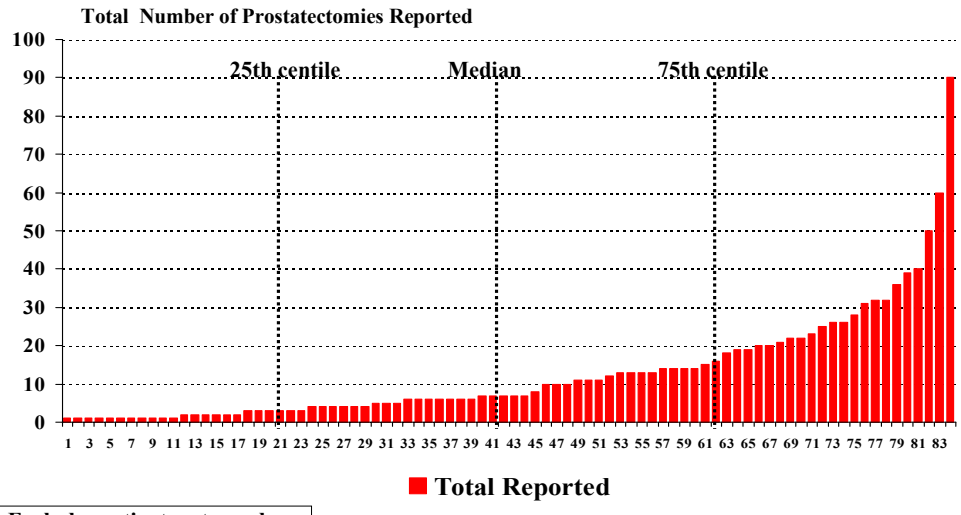
### Cystectomy - Current Status
**Follow up recorded in 17.6% (95 / 541) patients**
**Median time to latest Follow-up = 68 days; range 17 – 365 days**

| **Time to follow up** | **N** | ***% of total (95)*** | **0 – 90 days** | | **91-180 days** | | **181 – 360 days** | | **>=361 days** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **N** | ***%*** | **N** | ***%*** | **N** | ***%*** | **N** | ***%*** |
| **Alive with no evidence of bladder cancer** | **76** | ***80.0*** | **51** | ***83.6*** | **15** | ***75.0*** | **10** | ***76.9*** | **-** | |
| **Alive with local recurrence of bladder cancer** | **1** | ***1.1*** | **1** | ***1.6*** | **0** | **-** | **0** | **-** | **-** | |
| **Alive with lymph node involvement by bladder ca** | **5** | ***5.3*** | **3** | ***4.9*** | **1** | ***5.0*** | **0** | **-** | **1** | ***100.0*** |
| **Alive with metastatic disease** | **1** | ***1.1*** | **1** | ***1.6*** | **0** | **-** | **0** | **-** | **-** | |
| **Dead** | **5** | ***5.3*** | **2** | ***3.3*** | **2** | ***10.0*** | **1** | ***7.7*** | **-** | |
| **Not recorded** | **7** | ***7.4*** | **3** | ***4.9*** | **2** | ***10.0*** | **2** | ***15.4*** | **-** | |

## B. Radical Prostatectomies

## Chart 25

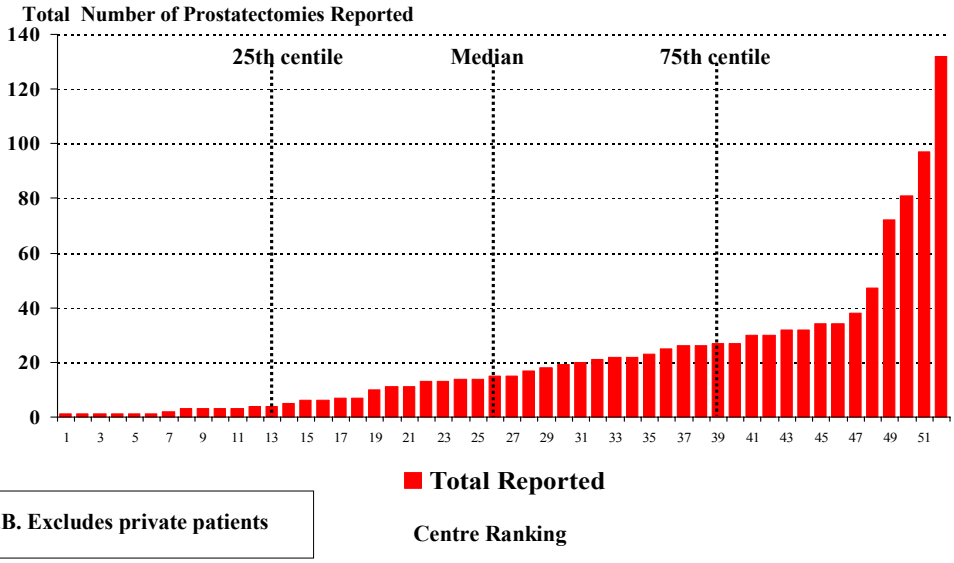
**Total Number of Prostatectomies Reported per Consultant**
**Median: 7 (Interquartile Range 3 - 18)**




N.B. Excludes patients returned under Centre number only

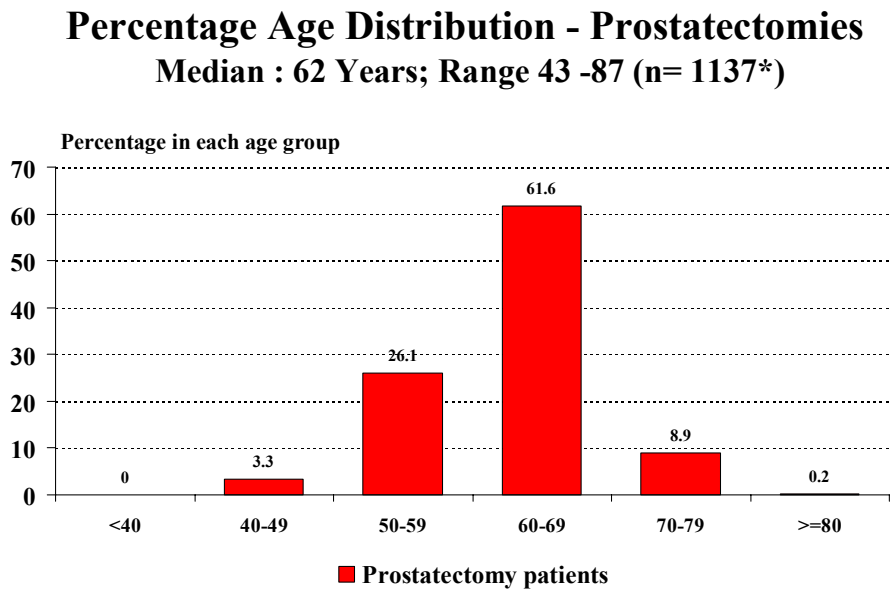
## Chart 26

**Total Number of Prostatectomies Reported per Centre**
**Median: 15 (Interquartile Range 6 - 25)**




N.B. Excludes private patients

## Chart 27




Age could be calculated when both date of birth and operation date were recorded = 1137/1156 (98%)

## Chart 28

### Prostatectomy Presentation

| Presentation | N | *% of total (1156)* |
|---|---|---|
| Via Screening or Case Finding | 460 | *39.8* |
| LUTS | 297 | *25.7* |
| Other | 169 | *14.6* |
| Not recorded | 230 | *19.9* |

**Other presentation was only recorded in 9% (15/169) cases**

**5.1% (45/887) were reported as having had a previous TURP**

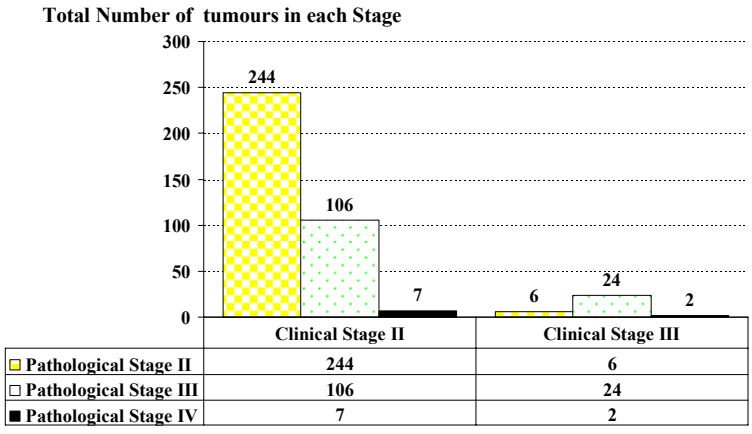
## Chart 29

### Prostatectomy Pre-operative Clinical Staging
**Staging could be estimated in 83% (960/1156) cases**

| Known Staging | Total Known<br>N | <br>% |
|---|---|---|
| Stage I<br>(T1a N0 M0) | 1 | *0.1* |
| Stage II<br>(T1b, 1c, 1, 2 N0 M0) | T1 – 59<br>T1a -0<br>T1b -12<br>T1c – 364<br>T2 – 446 | *6.1*<br>-<br>*1.5*<br>*37.9*<br>*46.5* |
| Stage III<br>(T3 N0 M0) | 75 | *7.8* |
| Stage IV<br>(T4 N0 M0<br>Any T N1 M0<br>Any T any N M1) | 3 | *0.3* |

## Chart 30

### Prostatectomies
**Comparison of clinical & pathological staging**



## Chart 31

### Staging of Prostate Tumours by PSA

**Numbers falling in each category**
**Pre-operative PSA was recorded in 89% patients (1031/1156)**
**Staging could be estimated in 83% (960/1156) cases**

| Known Clinical Staging | Total Patients | PSA 0-5 N | % | PSA 6-10 N | % | PSA 11-20 N | % | PSA 21-50 N | % | PSA > 50 N | % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stage I T1a N0 M0 | 1 | 1 | *0.6* | 0 | - | 0 | - | 0 | -- | 0 | - |
| Stage II T1b, 1c, 1, 2, N0 M0 | 855 | 152 | *95.6* | 460 | *91.6* | 215 | *90.7* | 24 | *82.8* | 3 | *100* |
| Stage III T3 N0 M0 | 73 | 5 | *3.1* | 40 | *8.0* | 22 | *9.3* | 5 | *17.2* | 0 | *100* |
| Stage IV (T4 N0 M0 Any T N1 M0 Any T any N M1) | 3 | 1 | *0.6* | 2 | *0.4* | 0 | - | 0 | - | 0 | - |
| Totals | 932 | 159 | | 502 | | 227 | | 29 | | 3 | |

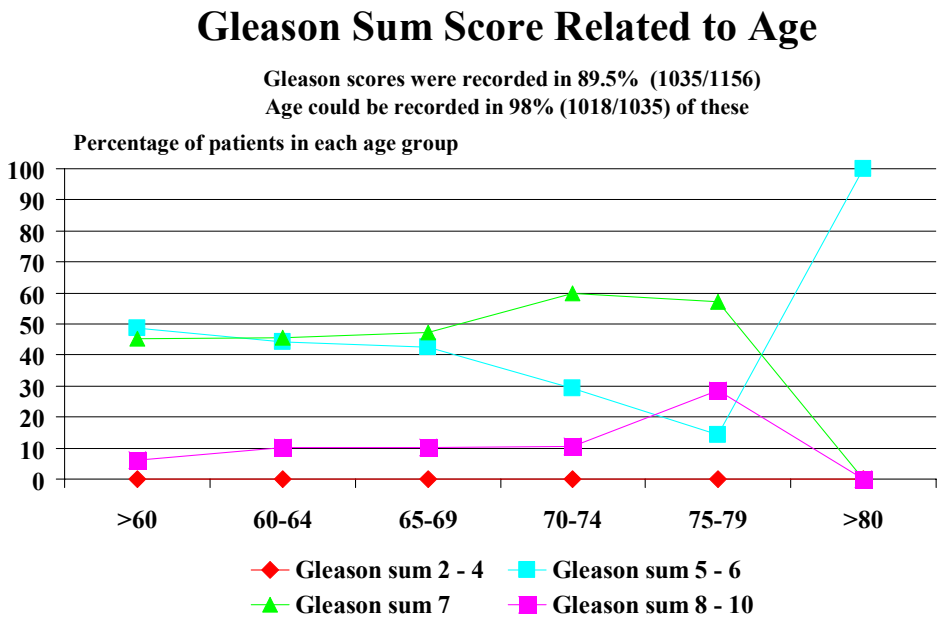
## Chart 32

### Gleason Sum Scores by Age Group - Prostatectomies

**Number falling into each category**
**Gleason scores were recorded in 89.5% (1035/1156)**
**Age could be recorded in 98% (1018/1035) of these**

| Age Group | Total Patients | Gleason sum 2 – 4 N | % | Gleason sum 5 – 6 N | % | Gleason sum 7 N | % | Gleason sum 8 – 10 N | % |
|---|---|---|---|---|---|---|---|---|---|
| < 60 | 301 | 0 | - | 147 | *48.8* | 136 | *45.2* | 18 | *6.0* |
| 60 – 64 | 320 | 0 | - | 141 | *44.1* | 146 | *45.6* | 33 | *10.3* |
| 65 – 69 | 304 | 0 | - | 129 | *42.4* | 144 | *47.4* | 31 | *10.2* |
| 70 – 74 | 85 | 0 | - | 25 | *29.4* | 51 | *60.0* | 9 | *10.6* |
| 75 – 79 | 7 | 0 | - | 1 | *14.3* | 4 | *57.1* | 2 | *28.6* |
| >=80 | 1 | 0 | | 1 | *100.0* | 0 | - | 0 | - |
| Totals | 1018 | 0 | - | 444 | *43.6* | 481 | *47.2* | 93 | *9.1* |

## Chart 33




## Chart 34

### Prostatectomy Pre-operative Potency

| | N | *% of total (1156)* |
|---|---|---|
| **Impotent** | **103** | ***8.9*** |
| **Partially potent** | **199** | ***17.2*** |
| **Fully potent** | **423** | ***36.6*** |
| **Potency not recorded** | **431** | ***37.3*** |

## Chart 35

### Prostatectomy Pre-operative Continence

| | N | *% of total (1156)* |
|---|---|---|
| **Complete** | **834** | ***72.1*** |
| **Minor stress leakage** | **14** | ***1.2*** |
| **1 pad per day** | **2** | ***0.2*** |
| **> 1 pad per day** | **3** | ***0.3*** |
| **Appliance** | **4** | ***0.3*** |
| **Continence not recorded** | **299** | ***25.9*** |

## Chart 36

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

| | Total Number | *% of total (1156)* | Supervised training operation | *%* |
|---|---|---|---|---|
| **Consultant** | **992** | ***85.8*** | **199/487** | ***41.0*** |
| **Specialist Registrar** | **37** | ***3.2*** | **35/36** | ***97.2*** |
| **Other** | **86** | ***7.4*** | **3/86** | ***3.5*** |
| **Surgeon not recorded** | **41** | ***3.5*** | **-** | **-** |

## Chart 37

### Prostatectomy - Procedure
**Nerve sparing**

| Nerve Sparing | N | *% of total (1156)* |
|---|---|---|
| **Bilateral** | **353** | ***30.5*** |
| **Unilateral** | **179** | ***15.5*** |
| **None** | **412** | ***35.6*** |
| **Not recorded** | **212** | ***18.3*** |

## Chart 38

### Prostatectomy Procedure - Approach

| | N | *% of total (1156)* |
|---|---|---|
| **Retropubic** | **545** | ***47.1*** |
| **Perineal** | **4** | ***0.3*** |
| **Other** | **23** | ***2.0*** |
| **Not recorded** | **584** | ***50.5*** |

## Chart 39

### Prostatectomy Procedure – Laparoscopic
### Conversion rate = 3.1% (13/416)*

| Laparoscopic | N | *% of total (1156)* |
|---|---|---|
| Yes | 416 | *36.0* |
| No | 548 | *47.4* |
| Not recorded | 192 | *16.6* |

***Conversion reasons were included in 10/13 and included size problems (2); difficult anatomy(3) and time constraints (1)**

## Chart 40

### Prostatectomies

- **40% had Lymph Node dissection (400/1000 patients)**
- **Median duration of operation:**
- **All patients = 160 mins; Range: 70 - 460; (797 patients)**
- **Patients having LND = 160 mins; Range: 70 - 420; (351 patients)**
  **Patients with no LND = 160 mins; Range: 70 – 460; (413 patients)**
- **Median number of units of blood transfused = 0**
  **Range: 0 - 14**
  **(reported in 67% (770) patients)**
- **Median measured blood loss = 600 mls**
  **Range: 0 – 25,000**
  **(reported in 67% (772) patients)**
- **Median post-operative stay = 3 days (excluding deaths)**
  **Range: 0 - 136**
  **(reported in 87% (1001) patients)**

## Chart 41

### Prostatectomies - Procedure

| | Procedure | N | Median | Range |
|---|---|---|---|---|
| Duration of Operation (mins) | Total patients | 797 | 160 | 70 – 460 |
| | Retropubic | 498 | 160 | 70 – 460 |
| | Perineal | 1 | 170 | |
| | Laparoscopic | 305 | 175 | 70 - 460 |
| Units of Blood Transfused | Total patients | 770 | 0 | 0 – 14 |
| | Retropubic | 477 | 0 | 0 – 14 |
| | Perineal | 1 | 0 | |
| | Laparoscopic | 310 | 0 | 0 – 6 |
| Measured Blood Loss (mls) | Total patients | 772 | 600 | 0 – 25,000 |
| | Retropubic | 472 | 700 | 0 – 25,000 |
| | Perineal | 1 | 500 | |
| | Laparoscopic | 306 | 300 | 0 - 3300 |
| Post –op Length of Stay (days) | Total patients | 1001 | 3 | 0 – 136 |
| | Retropubic | 496 | 4 | 0 – 95 |
| | Perineal | 4 | 3 | 2 – 6 |
| | Laparoscopic | 395 | 2 | 0 – 34 |

## Chart 42

### Prostatectomies Complications

| | | N | *%* |
|---|---|---|---|
| Intra-operative complications: | | 52/1156 | *4.5* |
| | Bleeding | 17/1156 | *1.5* |
| | Rectal Injury | 6/1156 | *0.5* |
| | Other / NR | 29/1156 | *2.5* |
| Post-operative complications: | | 83/1156 | *7.2* |
| | Infections | 16/1156 | *1.4* |
| | Ileus | 3/1156 | *0.3* |
| | Leaks | 10/1156 | *0.8* |
| | Bleeds | 4/1156 | *0.3* |
| | Other / NR | 51/1156 | *4.4* |

## Chart 43

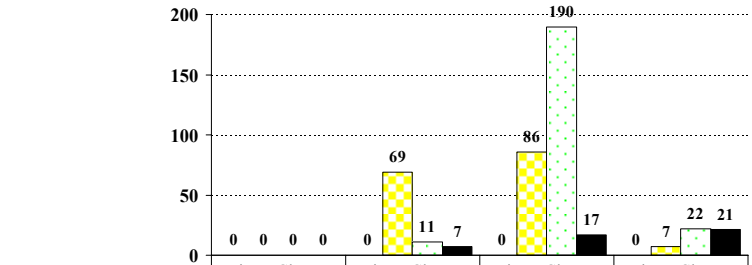
### Prostatectomy - Significance of Complications
**Overall morbidity Rate = 10.4% (120/1156)**
**30 day mortality Rate = 0% (0/1156)**

| | Intra-operative | | Post-operative | |
|---|---|---|---|---|
| | N | % | N | %) |
| No action required | 16 | 33.3 | 12 | 14.5 |
| Contributed to death | 0 | - | 0 | 0.0 |
| Delayed discharge | 2 | 4.2 | 19 | 22.9 |
| Required medical treatment | 11 | 22.9 | 33 | 39.8 |
| Required surgery | 5 | 10.4 | 13 | 15.7 |
| Not recorded | 16 | 33.3 | 6 | 7.2 |

## Chart 44

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

**Total Number of tumours in each Group**




| | Biopsy Gleason sum 2-4 | Biopsy Gleason sum 5 - 6 | Biopsy Gleason sum 7 | Biopsy Gleason sum 8 - 10 |
|---|---|---|---|---|
| Surgical Gleason sum 2 - 4 | 0 | 0 | 0 | 0 |
| Surgical Gleason sum 5 - 6 | 0 | 69 | 86 | 7 |
| Surgical Gleason sum 7 | 0 | 11 | 190 | 22 |
| Surgical Gleason sum 8 - 10 | 0 | 7 | 17 | 21 |

## Chart 45

### Prostatectomy Pathology

| | N | *% of total known* |
|---|---|---|
| **Known Positive Lymph Nodes** | **8/159** | ***5.0*** |
| **Known Seminal Vesical Involvement** | **43/435** | ***9.9*** |

## Chart 46

### Prostatectomy Follow ups

**Follow up recorded in 33.8% (391 / 1156) patients**

**Median time to Follow-up = 75 days; range 10 – 440 days**

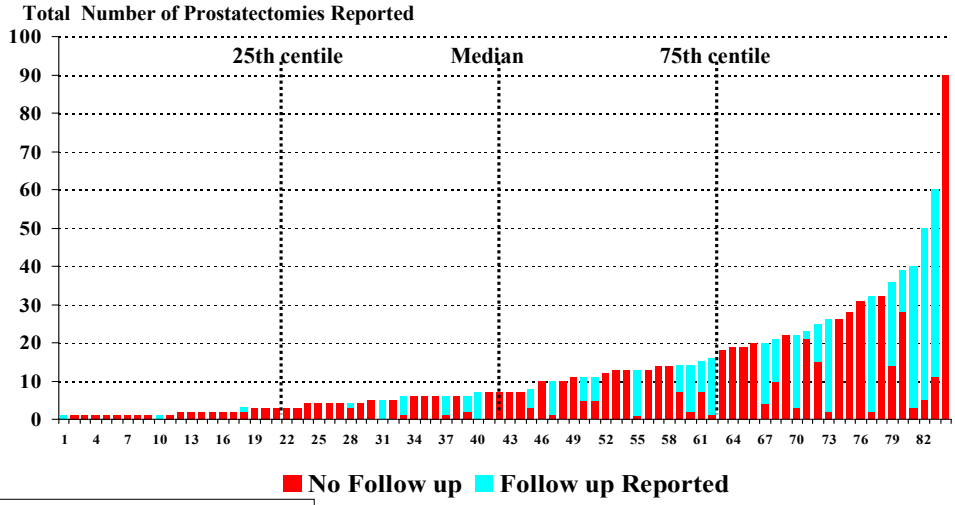
**Median number of Follow-ups = 0; Range: 0 - 4**

**Time to latest follow-up:**

| Time from Operation to follow-up | N | *% of total (391)* |
|---|---|---|
| **0 – 90 days** | **234** | ***59.8*** |
| **91 – 180 days** | **113** | ***28.9*** |
| **181 – 360 days** | **37** | ***9.5*** |
| **>=361 days** | **7** | ***1.8*** |

## Chart 47

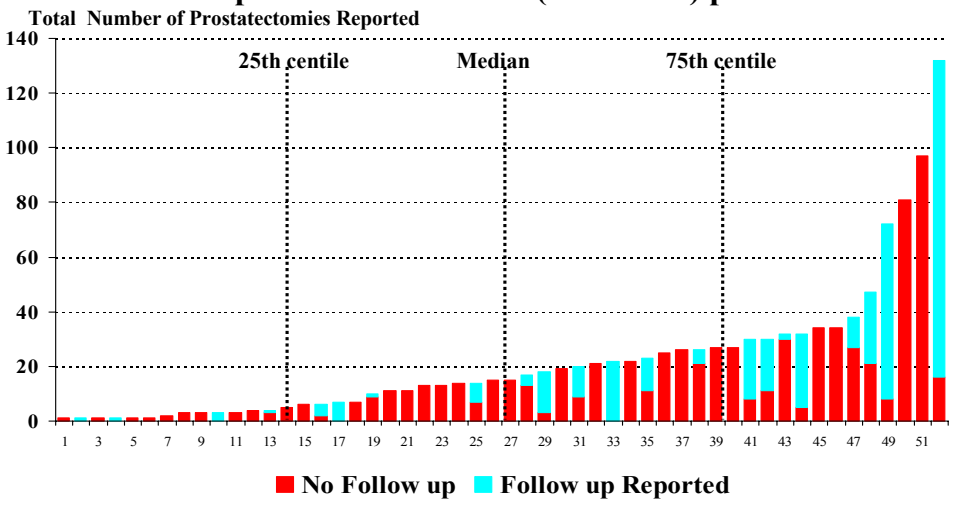
**Total Number of Prostatectomies Reported per Consultant**
**Including number with follow-ups**
**Follow up recorded in 33.8% (391 / 1156) patients**




N.B. Excludes patients returned under Centre number only

## Chart 48

**Total Number of Prostatectomies Reported per Centre**
**Including number with follow-ups**
**Follow up recorded in 33.8% (391 / 1156) patients**




N.B. Excludes private patients

## Chart 49

### Prostatectomy - Current Status
### Follow up recorded in 33.8% (391 / 1156) patients
### Median time to Follow-up = 75 days; range 10 – 440 days

| | N | *% of total (391)* |
|---|---|---|
| **Alive with no evidence of prostate cancer** | **341** | ***87.2*** |
| **Alive with local recurrence of prostate cancer** | **21** | ***5.4*** |
| **Alive with lymph node involvement** | **3** | ***0.8*** |
| **Alive with metastatic disease** | **2** | ***0.5*** |
| **Dead** | **0** | ***0.0*** |
| **Not recorded** | **24** | ***6.1*** |

Late complications were reported in 12.5% (49/391) patients:
10 Anastamotic strictures
2 Urethral strictures
7 Recurrent UTI
2 DVT
1 Testicular pain
1 Hernia
26 Other complications

## Chart 50

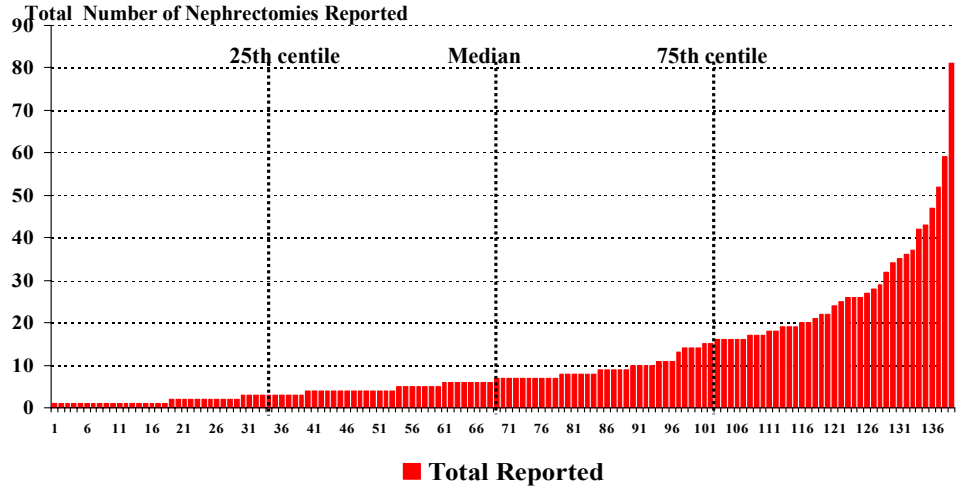
### Prostatectomy - Current Status
### Follow up recorded in 33.8% (391 / 1156) patients
### Median time to Follow-up = 75 days; range 10 – 440 days

| **Time to follow up** | **N** | ***% of total (391)*** | **0 – 90 days** | | **91-180 days** | | **181 – 360 days** | | **>=361 days** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **N** | ***%*** | **N** | ***%*** | **N** | ***%*** | **N** | ***%*** |
| **Alive with no evidence of prostate cancer** | **341** | ***87.2*** | **205** | ***88.7*** | **104** | ***89.7*** | **26** | ***70.3*** | **6** | ***85.7*** |
| **Alive with local recurrence of prostate cancer** | **21** | ***5.4*** | **9** | ***3.9*** | **9** | ***7.8*** | **3** | ***8.1*** | **0** | **-** |
| **Alive with lymph node involvement** | **3** | ***0.8*** | **2** | ***0.9*** | **0** | **-** | **1** | ***2.7*** | **0** | **-** |
| **Alive with metastatic disease** | **2** | ***0.5*** | **2** | ***0.9*** | **0** | **-** | **0** | **-** | **0** | **-** |
| **Dead** | **0** | ***0.0*** | **0** | **-** | **0** | **-** | **0** | **-** | **0** | **-** |
| **Not recorded** | **24** | ***6.1*** | **13** | ***5.6*** | **3** | ***2.6*** | **7** | ***18.9*** | **1** | ***14.3*** |

## C. Nephrectomies

## Chart 51

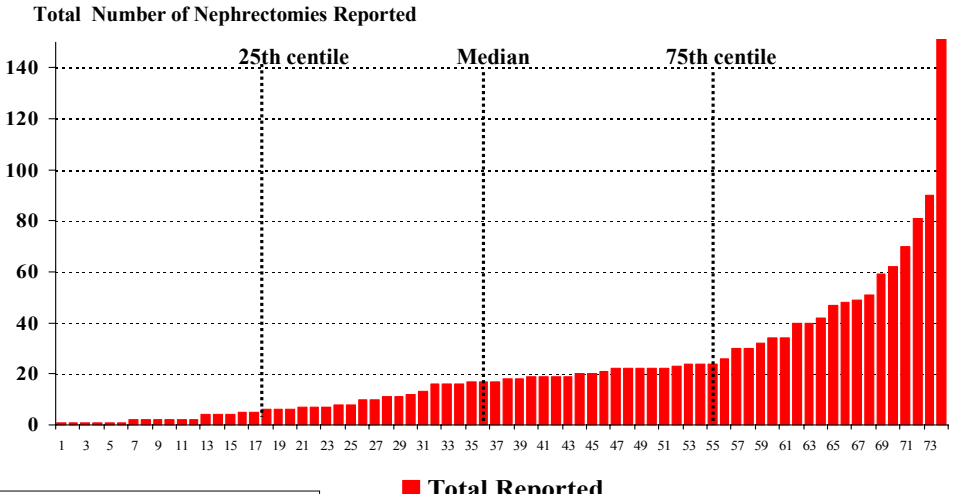
**Total Number of Nephrectomies Reported per Consultant**
**Median: 7 (Interquartile Range 3 - 16)**




N.B. Excludes patients returned under Centre number only

## Chart 52

**Total Number of Nephrectomies Reported per Centre**
**Median: 17 (Interquartile Range 6 - 24)**




N.B. Excludes private patients

## Chart 53

### Nephrectomy - Pre-operative presentation

| | N | *% of total (1692)* |
|---|---|---|
| **Incidental finding with no symptoms** | **465** | **27.5** |
| **Haematuria** | **425** | **25.1** |
| **Other:** | **460** | ***27.2*** |
| **Weight Loss** | **15** | ***3.26*** |
| **Other Ca** | **25** | ***5.43*** |
| **Pain** | **102** | ***22.2*** |
| **Other/Not recorded** | **318** | ***69.1*** |
| **Not recorded** | **342** | **20.2** |

## Chart 54

### Nephrectomies – Haematology at Presentation

| | N | Median | Range |
|---|---|---|---|
| **Hb (g/L)** | **1117** | **13.7** | **3 – 172** |
| **Total WBC (* $10^9$ / L)** | **1061** | **8** | **3 – 69** |
| **Neutrophils (* $10^9$ / L)** | **993** | **5** | **1.7 – 287** |
| **Lymphocytes (* $10^9$ / L)** | **689** | **2** | **0 – 108** |
| **Platelets (* $10^9$ / L)** | **1029** | **277** | **4.6 – 1001** |

## Chart 55

### Nephrectomy - Pre-operative Serum Creatinine

| Serum Creatinine Level µmols/l | N | *% of total (1692)* |
|---|---|---|
| 0 – 120 µmols/l | 939 | *55.5* |
| 121 - 200 µmols/l | 204 | *12.1* |
| > 200 µmols/l | 28 | *1.65* |
| Not recorded | 521 | *30.8* |

## Chart 56

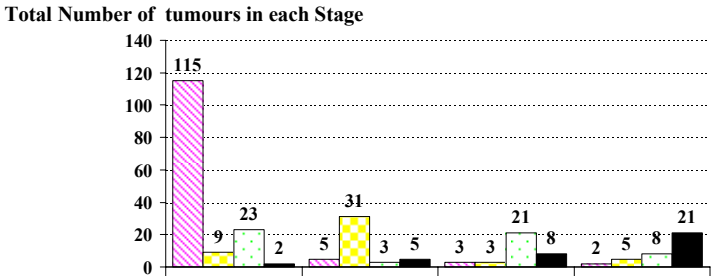
### Nephrectomy Pre-operative Clinical Staging
### Staging could be estimated in 69% (1171/1692) cases

| Known Staging | Total Known N | % |
|---|---|---|
| Stage I (T1 N0 M0) | 603 | *51.5* |
| Stage II (T2 N0 M0) | 251 | *21.4* |
| Stage III (T1, T2, T3 N0, N1 M0) | 181 | *15.5* |
| Stage IV (T4 N0, N1 M0 Any T N2 M0 Any T any N M1) | 136 including 112 with metastases | *11.6* *9.6* |

9.6% (130/1306) patients were reported as having a pre-operative biopsy

## Chart 57

# Nephrectomies
## Comparison of clinical & pathological staging




| | Clinical Stage I | Clinical Stage II | Clinical Stage III | Clinical Stage IV |
|---|---|---|---|---|
| Pathological Stage I | 115 | 5 | 3 | 2 |
| Pathological Stage II | 9 | 31 | 3 | 5 |
| Pathological Stage III | 23 | 3 | 21 | 8 |
| Pathological Stage IV | 2 | 5 | 8 | 21 |

## Chart 58

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

| | Total Number | *% of total (1692)* | Supervised training operation | *%* |
|---|---|---|---|---|
| Consultant | 1176 | *69.5* | 379/838 | *45.2* |
| Specialist Registrar | 166 | *9.81* | 156/158 | *98.7* |
| Other / Not recorded | 350 | *20.7* | 6/129 | *4.7* |

## Chart 59

### Nephrectomy – Procedure
**The vena cava was reported as being explored in 6.8% (73/1080) cases**
**78.4% (40/51) Infra-diaphragmatically; 21.6% (11/51) Supra-diaphragmatically**

| | N | *% of total (1692)* |
|---|---|---|
| Radical Nephrectomy | 1100 | *65* |
| Bilateral Radical Nephrectomy | 7 | *0.41* |
| Partial Nephrectomy | 162 | *9.57* |
| Simple Nephrectomy | 39 | *2.3* |
| Nephroureterectomy | 317 | *18.7* |
| Other | 19 | *1.12* |
| Not Recorded | 48 | *2.84* |

## Chart 60

### Nephrectomies – Surgical Approach
### Known Laparoscopic Conversion rate = 7.7% (47/612)*

| Approach | N | *% of total (1692)* |
|---|---|---|
| Open | 960 | *56.7* |
| Laparoscopic | 732 | *43.3* |

*** <u>Conversion reasons</u>**

- **12 due to bleeding**
- **4 due to adhesions**
- **7 due to failure to progress**
- **5 difficult dissection**
- **18 other / not recorded**

## Chart 61

### Nephrectomy Approach by Pre-operative Clinical Staging
### Staging could be estimated in 69% (1171/1692) cases

| Known Staging | Total | Open | | Laparoscopic | |
|---|---|---|---|---|---|
| | N | N | % | N | % |
| Stage I (T1 N0 M0) | 603 | 233 | *40.5* | 370 | *62.2* |
| Stage II (T2 N0 M0) | 251 | 146 | *25.3* | 105 | *17.6* |
| Stage III (T1, T2, T3 N0, N1 M0) | 181 | 104 | *18.1* | 77 | *12.9* |
| Stage IV (T4 N0, N1 M0 Any T N2 M0 Any T any N M1) | 136 | 93 | *16.1* | 43 | *7.23* |

## Chart 62

### Nephrectomies

- **13.7% had Lymph Node dissection (178/1299 patients)**
- **Median duration of operation = 160 minutes**
  **Range: 35 - 600**
  **(reported in 72% (1217) patients)**
- **Median number of units of blood transfused = 0**
  **Range: 0 - 20**
  **(reported in 56.9% (962) patients)**
- **Median measured blood loss = 250 mls**
  **Range: 0 – 11,000**
  **(reported in 53.4% (904) patients)**
- **Median post-operative stay = 6 days (excluding deaths)**
  **Range: 1 - 101**
  **(reported in 80.6% (1363) patients)**

## Chart 63

### Nephrectomies - Procedure

| | Procedure | N | Median | Range |
|---|---|---|---|---|
| Duration of Operation (mins) | Total patients | 1217 | 160 | 35 - 600 |
| | Open | 572 | 150 | 35 – 600 |
| | Laparoscopic | 646 | 180 | 50 – 470 |
| | LND | 136 | 165 | 60 – 600 |
| Units of Blood Transfused | Total patients | 962 | 0 | 0 – 20 |
| | Open | 533 | 0 | 0 – 20 |
| | Laparoscopic | 428 | 0 | 0 – 18 |
| Measured Blood Loss (mls) | Total patients | 904 | 250 | 0 – 11,000 |
| | Open | 527 | 300 | 0 – 11,000 |
| | Laparoscopic | 376 | 100 | 0 – 8,000 |
| Post –op Length of Stay (days) | Total patients | 1363 | 6 | 0 – 101 |
| | Open | 693 | 7 | 0 – 101 |
| | Laparoscopic | 668 | 5 | 0 – 100 |

## Chart 64

### Nephrectomies Complications

| | | N | *%* |
|---|---|---|---|
| Intra-operative complications: | | 79/1305 | *6.1* |
| | Bleeding | 16/1305 | *1.2* |
| | Required splenectomy | 10/1305 | *0.8* |
| | Other / NR | 53/1305 | *4.1* |
| Post-operative complications: | | 185/1225 | *15.1* |
| | Wound Infection | 13/1225 | *1.1* |
| | Chest Infection | 32/1225 | *2.6* |
| | Bleeding | 11/1225 | *0.9* |
| | MI | 6/1225 | *0.5* |
| | Other / NR | 123/1225 | *10.0* |

## Chart 65

### Nephrectomy - Significance of Complications
**Overall morbidity Rate = 14.0% (237/1692)**
**30 day mortality Rate = 1.2% (21/1692)**

| | Intra-operative | | Post-operative | |
|---|---|---|---|---|
| | N | % | N | % |
| No action required | 11 | 13.9 | 12 | 6.49 |
| Contributed to death | 4 | 5.06 | 14 | 7.57 |
| Delayed discharge | 8 | 10.1 | 55 | 29.7 |
| Required medical treatment | 13 | 16.5 | 72 | 38.9 |
| Required surgery | 7 | 8.86 | 19 | 10.3 |
| Not recorded | 36 | 45.6 | 13 | 7.03 |

## Chart 66

### Nephrectomies – Parenchymal Tumours
### Predominant cell type
### Reported in 96% parenchymal tumours (285/296)

| Predominant Cell Type | N | % of total reported (285) |
|---|---|---|
| Clear Cell | 222 | 77.9 |
| Papillary | 29 | 10.2 |
| Oncocytoma | 11 | 3.86 |
| Chromophobe | 11 | 3.86 |
| Collecting duct | 0 | - |
| Other | 12 | 4.21 |

## Chart 67

### Nephrectomies – Urothelial Tumours
### Site of Tumour
### Reported in 91% parenchymal tumours (61/67)

| Site of Tumour | N | *% of total reported (61)* |
|---|---|---|
| Calyx | 8 | *13.1* |
| Pelvis | 20 | *32.8* |
| PUJ | 1 | *1.64* |
| Ureter | 23 | *37.7* |
| Multiple sites | 9 | *14.8* |

## Chart 68

### Nephrectomy Follow ups

**Follow up recorded in 15.8% (266 / 1692) patients**

**Median time to Follow-up = 75 days; range 8 – 394 days**

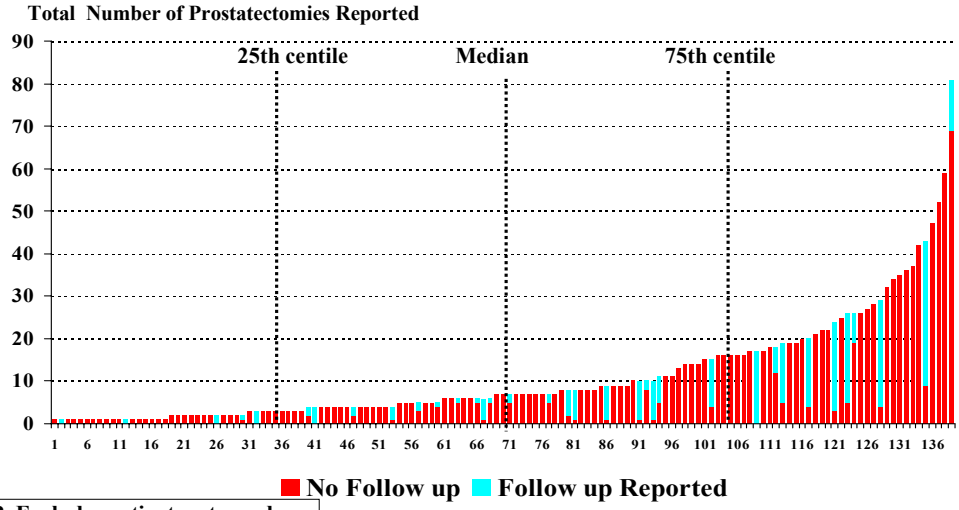
**Median number of Follow-ups = 0; Range: 0 - 7**

**Time to latest follow-up:**

| Time from Operation to follow-up | N | *% of total (266)* |
|---|---|---|
| 0 – 90 days | 145 | *54.5* |
| 91 – 180 days | 53 | *19.9* |
| 181 – 360 days | 65 | *24.4* |
| >=361 days | 3 | *1.13* |

## Chart 69

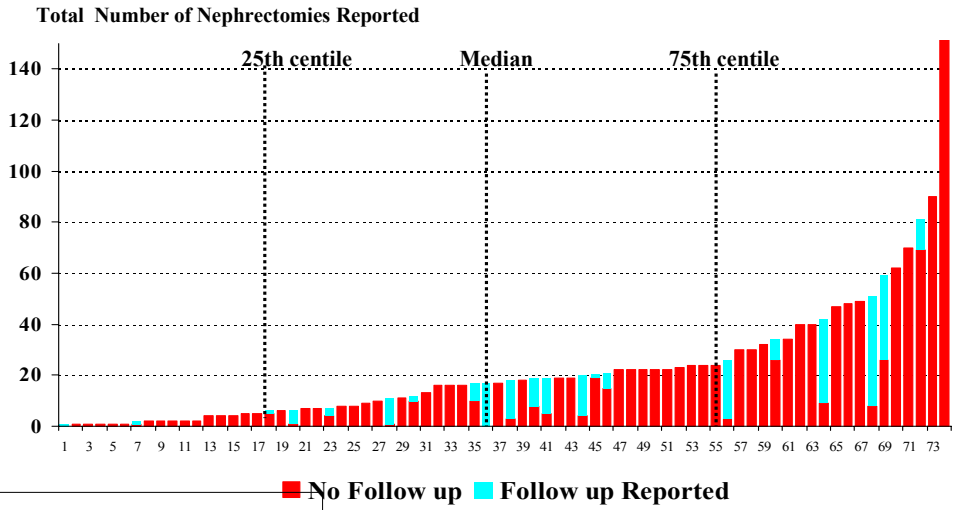
**Total Number of Nephrectomies Reported per Consultant**
**Including number with follow-ups**
**Follow up recorded in 15.8% (266 / 1692) patients**




N.B. Excludes patients returned under Centre number only

## Chart 70

**Total Number of Nephrectomies Reported per Centre**
**Follow up recorded in 15.8% (266 / 1692) patients**




N.B. Excludes private patients

## Chart 71

### Nephrectomy - Current Status
### Follow up recorded in 15.8% (266 / 1692) patients
### Median time to Follow-up = 75 days; range 8 – 394 days

| | N | *% of total (266)* |
|---|---|---|
| **Alive with no evidence of renal cancer** | **220** | ***82.7*** |
| **Alive with local recurrence of renal cancer** | **3** | ***1.13*** |
| **Alive with lymph node involvement** | **3** | ***1.13*** |
| **Alive with metastatic disease** | **21** | ***7.89*** |
| **Dead** | **4** | ***1.5*** |
| **Not recorded** | **15** | ***5.64*** |

Late complications were reported in 47/266 (17.7%) patients:
7 wound infection
3 wound hernia
12 renal
9 wound pain
21 other

## Chart 72

### Nephrectomy - Current Status
### Follow up recorded in 15.8% (266 / 1692) patients
### Median time to Follow-up = 75 days; range 8 – 394 days

| **Time to follow up** | **N** | **% of total (266)** | **0 – 90 days** | | **91-180 days** | | **181 – 360 days** | | **>=361 days** | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | **N** | ***%*** | **N** | ***%*** | **N** | ***%*** | **N** | ***%*** |
| **Alive with no evidence of renal cancer** | **220** | ***82.7*** | **118** | ***82.5*** | **42** | ***77.8*** | **58** | ***87.9*** | **2** | ***66.7*** |
| **Alive with local recurrence of renal cancer** | **3** | ***1.13*** | **0** | **-** | **1** | ***1.85*** | **1** | ***1.52*** | **1** | ***33.3*** |
| **Alive with lymph node involvement** | **3** | ***1.13*** | **0** | **-** | **2** | ***3.7*** | **1** | ***1.52*** | **0** | **-** |
| **Alive with metastatic disease** | **21** | ***7.89*** | **9** | ***6.29*** | **6** | ***11.1*** | **6** | ***9.09*** | **0** | **-** |
| **Dead** | **4** | ***1.5*** | **3** | ***2.1*** | **1** | ***1.85*** | **0** | **-** | **0** | **-** |
| **Not recorded** | **15** | ***5.64*** | **13** | ***9.09*** | **2** | ***3.7*** | **0** | **-** | **0** | **-** |

## D. Participating Hospital Centres

We are grateful to Consultants from the following Centres who provided data for the analyses:

Aberdeen Royal Infirmary
Alexandra Hospital Redditch
Arrowe Park Hospital
Ayr Hospital
Barnet & Chase Farm Hospital
Bedford Hospital
Bradford Royal Infirmary
Broomfield Hospital
Castle Hill Hospital Hull
Christie Hospital
Churchill Hospital
Conquest Hospital
Derby City General Hospital
Derriford Hospital
District General Hospital Southport
Doncaster Royal Infirmary
Dorset County Hospital
East Lancashire Hospitals NHS Trust
East Surrey Hospital
Freeman Hospital
Frimley Park Hospital
Gartnavel General Hospital
Glasgow Royal Infirmary
Gloucestershire Royal Hospital
Guy's Hospital
Hairmyres Hospital
Harrogate District Hospital
Hemel Hempstead General Hospital
Hereford Hospitals NHS Trust
Inverclyde Royal Hospital
James Cook University Hospital
Kettering General Hospital
King's Mill Hospital
Leicester General Hospital
Leighton Hospital Crewe
Lister Hospital Stevenage
Milton Keynes District General Hospital
Monklands District General Hospital
New Cross Hospital Wolverhampton
Noble's Isle of Man Hospital
North Devon District Hospital
North Hampshire Hospital
Nottingham City Hospital
Queen Elizabeth Hospital B'ham
Queen's Hospital Burton on Trent
Royal Alexandra Hospital (Paisley)
Royal Cornwall Hospital
Royal Bournemouth Hospital
Royal Devon And Exeter Hospital
Royal Glamorgan Hospital
Royal Gwent Hospital
Royal Hallamshire Hospital
Royal Hampshire County Hospital
Royal Liverpool University Hospital
Royal Preston Hospital
Royal Surrey County Hospital
Royal West Sussex NHS Trust
Salford Royal Hospital
Salisbury District Hospital
South Tyneside General Hospital
Southend Hospital
Southern General Hospital Glasgow
Southmead Health Services Trust
St Helier Hospital
St James's University Hospital
St Mary's Hospital, Portsmouth
St Mary's Hospital, IOW
Stirling Royal Infirmary
Stobhill Hospital
Sunderland Royal Hospital
Taunton & Somerset NHS Trust
Torbay Hospital
University Hospital of North Durham
University Hospital of North Stafford
University Hospital Of Wales
Western General Hospital, Edinburgh
Whipps Cross Hospital
Whiston Hospital
Wrexham Maelor Hospital