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Cystectomy Dataset

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BAUS Cystectomy Clinical Lead



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JCU

Original Article

Radical cystectomy: Analysis of trends in UK practice 2004–2012, from the British Association of Urological Surgeons' (BAUS) Section of Oncology Dataset

**J Cresswell¹, P Mariappan², SA Thomas³, MS Khan⁴, MI Johnson⁵,
and S Fowler⁶ on behalf of the BAUS Section of Oncology**

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Urological Surgeons 2015
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DOI: 10.1177/2051415815595325
uro.sagepub.com
SAGE

Approx 30% of RC entered into the BAUS dataset

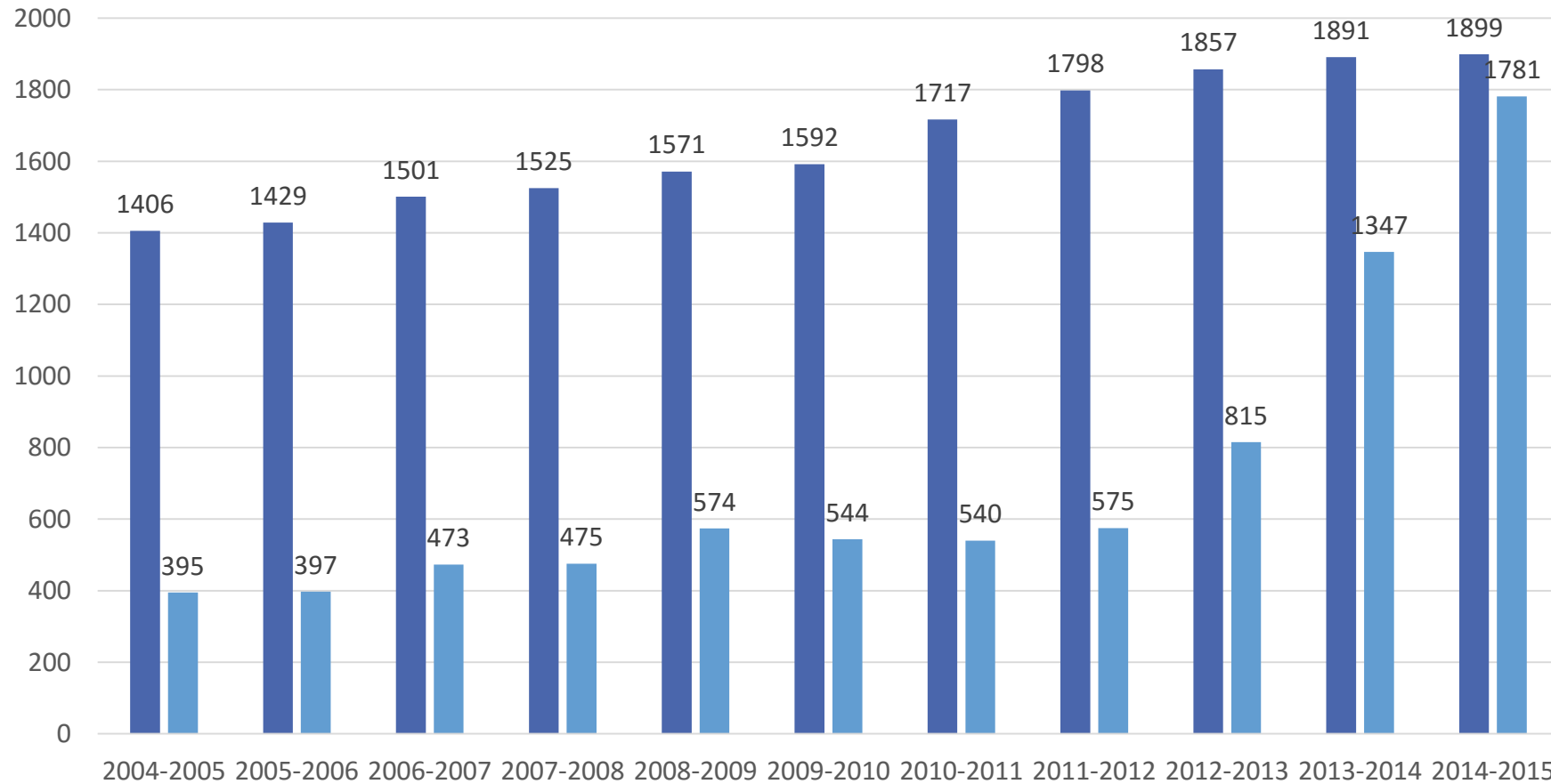
Then publication of outcomes became mandatory...



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BAUS Cystectomy Data Returns from England Compared to HES



28.1%

■ HES ■ BAUS

93.8%



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Individual surgeon mortality rates: can outliers be detected? A national utility analysis

Ewen M Harrison,¹ Thomas M Drake,² Stephen O'Neill,¹ Catherine A Shaw,¹
O James Garden,¹ Stephen J Wigmore¹

Harrison EM et al, BMJ
Open, Nov 2016

Only 20% power to detect a surgeon with 3x national
median mortality rate

*Based on 55 colorectal procedures per surgeon, with a 3% 90 day mortality
rate

How do we develop our data publication to provide
valuable information to the public, surgeons and
providers.....?



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Plan For the Session

What data do we collect/analyse? *Sarah Fowler*

How does BAUS respond to data? *Louisa Hermans*

What next for the cystectomy dataset? *Ed Rowe*

Over to you ...

An interactive discussion led by Kieran O'Flynn



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Cystectomy Dataset Analysis

Sarah Fowler

BAUS Data & Audit Manager



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BAUS Cystectomy – COP* Project

Summary & Timescale of the Data

The 2-year data collection period was from 1 January 2014 to 31 December 2015.

3,743 cases were submitted in total, of which 3,410 were from England (1,640 from 2014 and 1,770 from 2015); these 3,743 cases came from 161 consultants at 84 sites, and include 68 private patients from 23 consultants.

Hospital Episode Statistics (HES)  for 2014 & 2015 indicate that there were 3,980 radical cystectomies undertaken in England during this time period (2,028 in 2014 and 1,952 in 2015), so this audit collected data on 86% of the radical cystectomies undertaken in England during 2014 and 2015.

Of the total 3,743 cases reported 67.8% were open, 20.6% were robotic assisted, 7.5% laparoscopic, 1.7% Minimally invasive NOS and in 2.5% of cases the technique was not recorded.

Overall Median number of cases per consultant: 18 (range 1 - 176)

Overall Median number of cases per centre: 31 (range 1 - 205)



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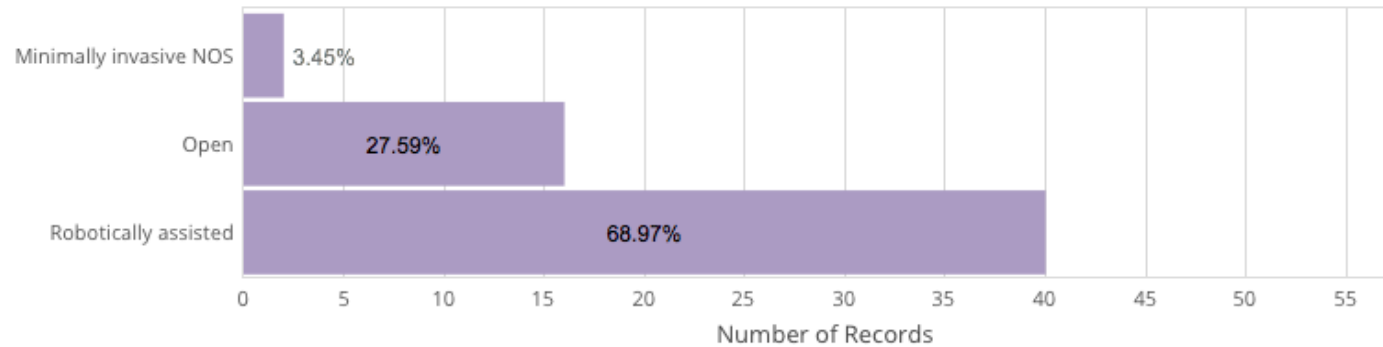
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Type and volume of surgery



Total by Type



National Figures

	Number	Median	Minimum	Maximum
Open	2537	13	1	158
Laparoscopic	280	4	1	72
Robotic	771	11	1	82
Minimally Invasive NOS	62	2	1	11
Total	3743	18	1	176



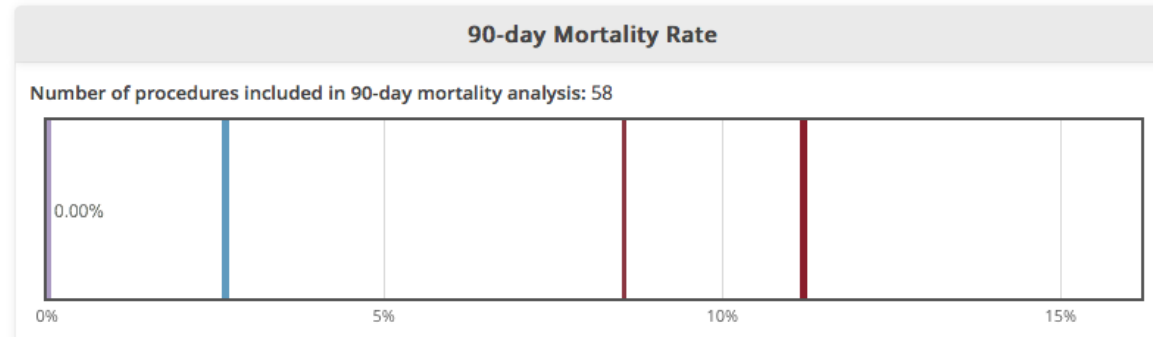
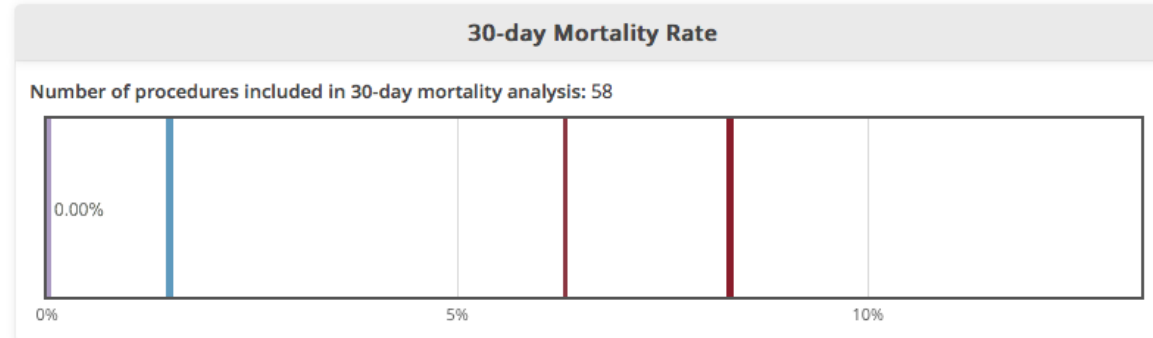
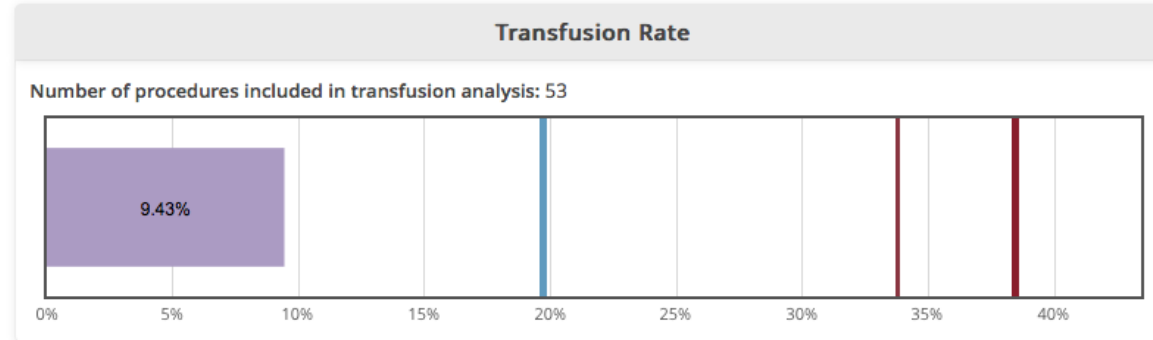
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HES 30 day mortality for 2014 &
2015 = 1.53%

BAUS 30 day mortality England only
for 2014 & 2015 = 1.52% (total
returns = 1.49%)



The light blue line in these graphs indicates the national average. The red lines indicate 99% & 99.9% upper alarms.

HES 90 day mortality for 2014 &
2015 = 3.8%

BAUS 90 day mortality England
only for 2014 & 2015 =
2.73% (total returns = 2.64%)



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Length of Stay

Length of Stay



Post-operative Length of Stay

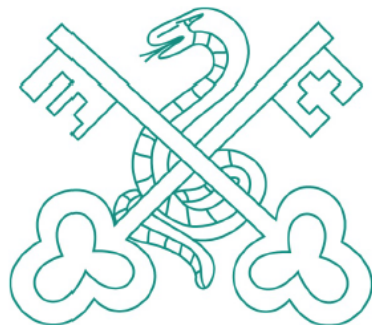
	Number of Records	Median (days)	Minimum (days)	Maximum (days)
Consultant - Open	16	8	5	26
National - Open	2537	11	1	257
Consultant - Laparoscopic	-	-	-	-
National - Laparoscopic	280	8	1	88
Consultant - Robotic	40	7.5	1	36
National - Robotic	771	8	1	93



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Detailed Analyses



**THE BRITISH ASSOCIATION OF
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Analyses of Radical Cystectomies performed between

January 1st and December 31st 2015

Consultants can request these charts filtered to contain just their data for comparative analysis with the global analyses downloadable from the BAUS web-site:

http://www.baus.org.uk/professionals/baus_business/data_audit.aspx



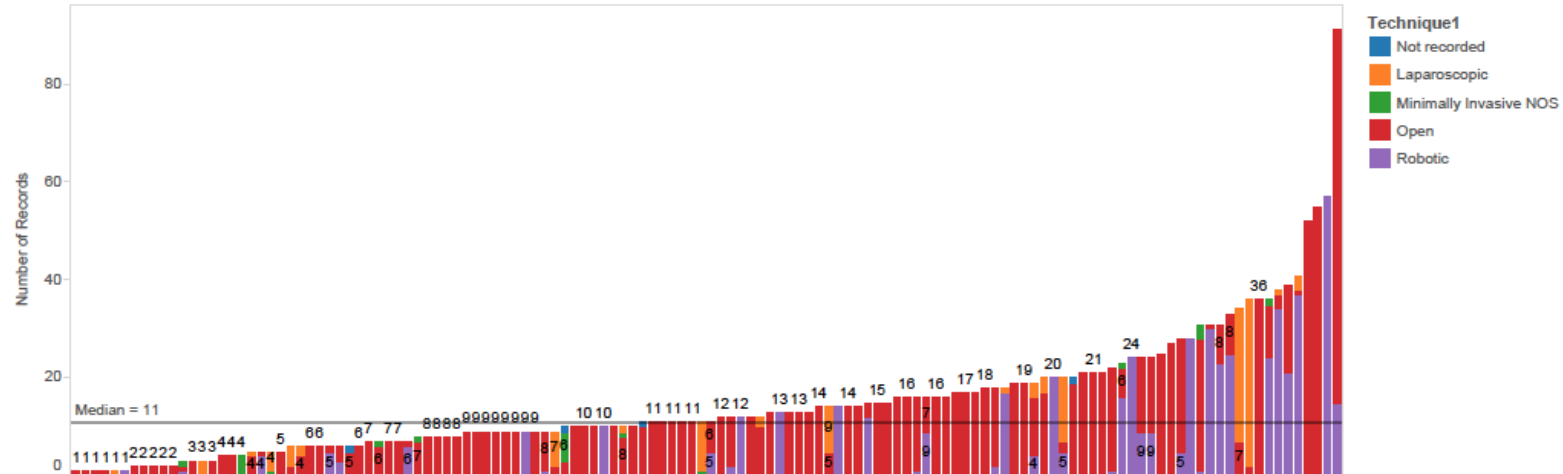
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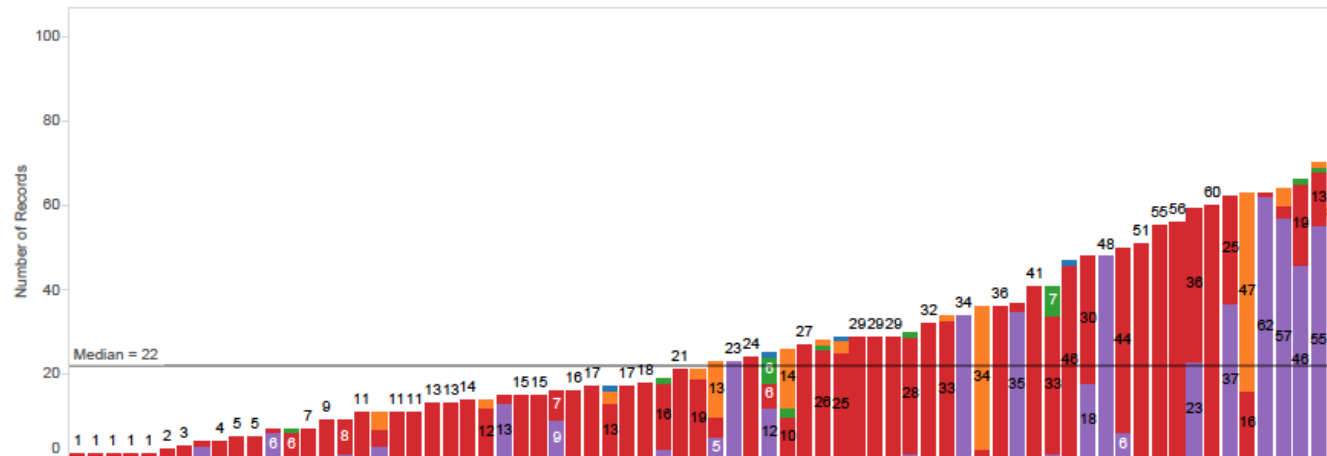
Sample of Detailed Analyses -1

Total returns for Radical Cystectomy procedures performed between 01/01/2015 and 31/12/2015
1948 cases from 130 consultants at 71 centres including 45 private cases from 15 consultants

Total by Consultant



Total by Centre





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Sample of Detailed Analyses -2

Totals by Technique

Gender1	Technique1									
	Open		Robotic		Laparoscopic		Minimally Invasive NOS		Not recorded	
	N	% Total	N	% Total	N	% Total	N	% Total	N	% Total
Male	938	73.3%	415	80.8%	97	75.2%	17	81.0%	4	100.0%
Female	341	26.7%	100	19.4%	32	24.8%	4	19.0%		
Grand Total	1,279	100.0%	515	100.0%	129	100.0%	21	100.0%	4	100.0%

Technique by Age

Technique1	N	Median	Min	Max
Open	1,279	69	0	100
Robotic	515	68	0	100
Laparoscopic	129	69	0	85
Minimally Invasive NOS	21	64	48	84
Not recorded	4	61	50	77

Indication

Indication For Cystectomy	N	% Total
Muscle invasive TCC	889	45.8%
Primary NMIBC	226	11.8%
NMIBC refractory to intravesical treatment	321	16.5%
Primary adenocarcinoma	27	1.4%
Primary CIS	55	2.8%
Salvage after radiotherapy	52	2.7%
Sarcoma	21	1.1%
Squamous cell carcinoma	67	3.4%
Uncontrolled non-muscle invasive disease	7	0.4%
Benign disease	28	1.4%
Gynaecological cancer	16	0.8%
Secondary adenocarcinoma	18	0.9%
Other	107	5.5%
Not recorded	114	5.9%
Grand Total	1,948	100.0%

Pre-op Imaging

Pre Operative Imaging (group)	N	% Total
CT	1,111	57.0%
CT +/- Bone scan, USS, MRI Others	602	30.9%
MRI	70	3.6%
MRI + others	14	0.7%
USS +/- Other	5	0.3%
None	59	3.0%
Other	1	0.1%
Not recorded	86	4.4%
Grand Total	1,948	100.0%

Pre-operative Serum Egfr

Egfr Normal	Serum Egfr	N	% Total
Yes (>60)	40 - 60	1	0.1%
	not recorded / applicable	1,209	62.1%
	Total	1,210	62.1%
No	20 - 39	72	3.7%
	40 - 60	293	15.0%
	<20	20	1.0%
	not recorded / applicable	43	2.2%
	Total	428	22.0%
Not recorded	not recorded / applicable	310	15.9%
	Total	310	15.9%
Grand Total		1,948	100.0%

Pre-op Serum Creatinine

Pre-op Serum CreatL	N	% Total
0 - 120	1,279	65.7%
121 - 200	229	11.8%
> 200	26	1.3%
Not recorded	414	21.3%
Grand Total	1,948	100.0%



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Individual Analyses available from the Live BAUS Data & Audit System

1 – export data as an excel file

BAUS Data and Audit System

Export data for : XXXX

Please select the BAUS database that you wish to export.

Select a database...

Which consultant(s): All consultants

Which hospital(s): All hospitals

Start Date



End Date



Include legacy fields: ☒ No ☐ Yes

Press 'Export My Data' to create a new batch of data export files for the selected database.

NOTE: Exported files will now contain the Primary Consultant and Hospital by [name](#)

Exported files may be downloaded by clicking on the Document Name ([hyperlink](#))

Files may be deleted singly or in a batch by using the buttons in the right-hand column

Export My Data



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Individual Analyses available from the Live BAUS Data & Audit System

2 – Dashboards and funnel plots:

BAUS Data and Audit System

Analysis

Database	Cystectomy
Report	Dashboard
Date cohort:	No date filter
Dataset:	All my data

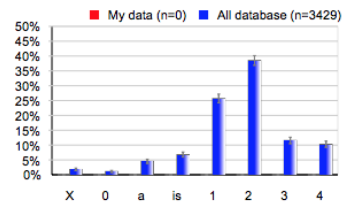
Execute Report

Dashboard and funnel plots are generated using live unvalidated data.
Results should be regarded with caution.

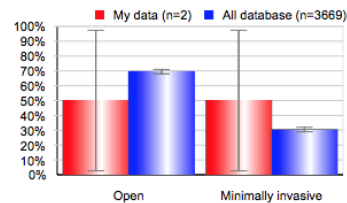
BAUS Data and Audit System

Cystectomy dashboard
All my data
Period between 01 January 2014 and 31 December 2015

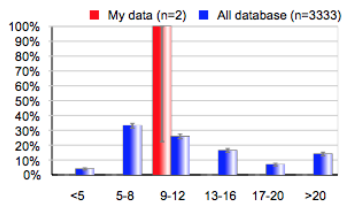
Reported Pre-operative clinical T stage



Surgical Technique used

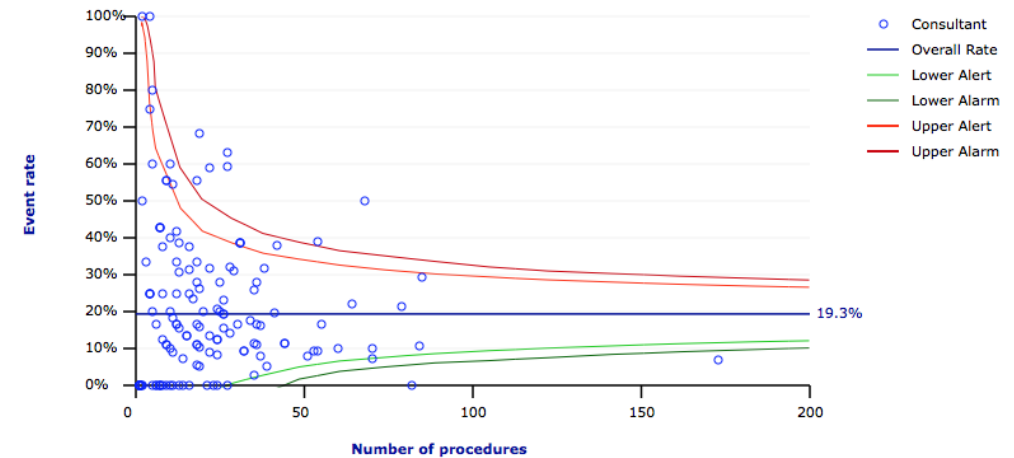


Post-operative stay



Dendrite Funnel Plot Module

Funnel Plot - Transfusion Rate (CYST) for XXXX (@ 04 November 2016)



Funnel Plot Setup Details

Selected outcomes: Minor (<2 units), Moderate (3-6 units), Major (>6 units)

Time Period: Jan 1st 2014 to Dec 31st 2015

Recorded number of patients with this outcome = 0 out of a total of 0

Observed rate = 0.0% versus the Overall rate = 19.3%

1 and 2 σ 2 and 3 σ 3 and 4 σ 4 and 5 σ 90% and 95% 95% and 99% 99% and 99.9% 99.9% and 99.99%



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COP Publication of Cystectomy Data

Louisa Hermans

BAUS Programme Manager



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Engagement with the Audit

- BAUS contacts the unit Clinical Lead for Urology if:
 - No data returned when expected – 4 units
 - Less than 50% of the data expected returned – 5 units
- A ‘final’ opportunity to enter data
- Can provide volume per surgeon for display
- No response – unit level ‘Data Quality’ figure (%)



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Engagement and Data Challenges

- Case ascertainment
- Missing data
- Validation of the data by surgeons
- Trust support for data entry and validation
- Therefore, BAUS only publishes unit level (Data Quality) figures



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Statistical Outliers

- Not recording all cases and all complications / checking your data may mean you appear as a statistical outlier
- Impacts negatively on those who record all their data
- HQIP wants BAUS to inform Trust management immediately
- BAUS will always refer back to the surgeon first to check that the data is accurate and complete



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What BAUS Will Do

- Contacts outliers to contextualise their data
- Responses are considered by the Clinical Lead for the audit
- BAUS may inform Trust MD, CEO and Clinical Lead for Urology if there are significant concerns



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HQIP – Direction of Travel

- BAUS has declined to change the threshold for alerts and alarms
- Mortality
- BAUS is providing limited data for display on NHS Choices



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Take Home Messages

- BAUS supports and engages with COP to benefit patients and support surgeons
- Participation, data accuracy and data completeness make the data meaningful
- **DON'T** risk appearing as a statistical outlier because of incomplete data
- **DO** check the data summaries Sarah Fowler sends you



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BAUS Cystectomy Data - Where Next

Ed Rowe, Bristol

BAUS Cystectomy Clinical Lead



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Key Issues

- Surgical complexity
- Accurate recording of complications



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Do We Record Complications Currently?

- 57/161 (35%) recorded zero intra-operative complications (Ave no of procedures 9.5, range 1–59)
- 32/ 61 (19.9%) recorded zero post-op complications (Ave no of procedures 6.1, range 1-25)



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Surrogate Markers?

- 30 and 90 day mortality
- Length of stay
- Re-admission rates
- Return to theatre
- Or Clavien Dindo 3 and above
- PROM



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What Makes A Cystectomy More Complex?

- Salvage post RT
- Previous laparotomy incision
- AT < 11
- Anaemia
- BMI v low or v high
- Radiological T4



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Surgical complexity score

≥ 3 High Risk

1-2 Intermediate Risk

0 Low risk

Surgical risk	Score
Salvage post RT	3
AT <11	2
Previous Laparotomy	1
Age >75	1
Charlson index >1	1
BMI > or <	1
Anaemia	1
TOTAL	