

Predictors of use of orthotopic bladder reconstruction after radical cystectomy for bladder cancer: Data from a pilot study of 2414 cases 2004-2010

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Voiding after cystectomy

- Incontinent reconstruction
 - Urostomy (ileal conduit); most common method
- Continent reconstruction
 - Continent urinary diversion
 - Orthotopic reconstruction (neo-bladder formation) that could allow near-normal voiding after training
- *Evidence on QoL benefits and optimal use of any reconstructive option limited*



Why is orthotopic reconstruction of interest

- Are suitable patients offered choice of orthotopic reconstruction?
- Unwarranted / large variation between patient groups and cancer networks likely
 - Procedures take time to spread and be established, is this underway?
 - US data indicates socioeconomic variation (*Cancer 2006; 107; p729*)



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The datasets - The ideal study

- Nation-wide data, *but*
- Original planned to use HES (OPCS codes) but 'code signature' elusive
- Queries on "Cystectomy + M369" (unspecified enlargement of bladder)
 - Very few results
- Heuristic examination of code combinations unfruitful
 - Some mention of "ileal conduit", but nothing else



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The datasets - *What was possible*

- British Association of Urological Surgeons (BAUS) complex surgery database (2004-10, England)
 - includes data item on reconstruction details
- Linkage to Hospital Episode Statistics or main BAUS register for additional information – postcode, age
- Results in 2,414 patients suitable for analysis



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Methods

- Examined variation in orthotopic reconstruction use between
 - Different patient groups / tumour characteristics
 - Different networks and consultants
- Three-level mixed logistic regression models
 - Estimate patient-level variation un-confounded by the concentration of patients of some groups within networks or consultants with higher / lower than average use



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Results - Initial sample

- 2,414 cystectomy patients (28 network / 158 consultants)
- 135 (6%) patients had orthotopic (16 networks / 50 consultants)

But...

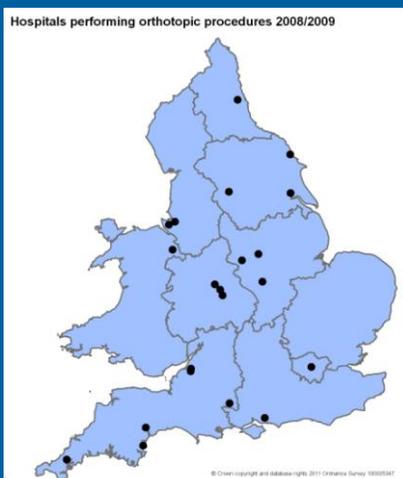
- Completeness of recording likely to have been variable
 - 2 to 406 cystectomies by Network
- Crude rate of orthotopic reconstruction from 0% to 50% (average 5.4%)



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Discussion - hospitals



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Patient Characteristics

	Patient characteristic	All patients	Patients treated by orthotopic reconstruction	% treated by orthotopic reconstruction	p*
Gender	Men	1,779	115	6%	0.001
	Women	612	18	3%	
	No gender information	23	2	9%	
Age group	30-39	21	4	19%	<0.001
	40-49	91	17	19%	
	50-50	340	48	14%	
	60-69	847	53	6%	
	≥70	1,046	13	1%	
	No age information	69	0	0%	



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Patient Characteristics 2

	Patient characteristic	All patients	Patients treated by orthotopic reconstruction	% treated by orthotopic reconstruction	p*
Deprivation	Most Deprived	418	26	6%	0.217
	2	521	20	4%	
	3	476	26	5%	
	4	499	29	6%	
	Least Deprived	459	33	7%	
	No deprivation information	41	1	2%	
Stage	0	208	13	6%	0.104
	1	368	26	7%	
	2	971	58	6%	
	3	244	13	5%	
	4	173	5	3%	
	Unknown stage	450	20	4%	



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Results - all patients

Variable	Odds Ratio	p-Value
Sex (male vs female)	2.28	0.007
Age-band (30,40...70+)	0.38	<0.001
Least deprived compared with most deprived	2.01	0.030
Stage (0 – IV)	0.84	0.118
Network activity (log ₂ scale)	0.96	0.820
Hospital network (random effect, SD=1.45)	95% mid-range 0.62-1.62 (2.6-fold variation)	<0.001
Consultant (random effect, SD=2.58)	95% mid-range 0.20-5.90 (35-fold variation)	<0.001



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Final data

- Removed networks with <30 patients
- 17 networks
- 1,792 patients



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Discussion

- Men more likely to have reconstruction; anatomically easier
- Younger patients more likely to have reconstruction
 - ? co-morbidity
 - ? selection of best candidates for req'd rehabilitation
- Affluent patients more likely to have reconstruction
 - ? education driving patient choice (*Cancer 2006; 107; p729*)
- Large variation between networks (and >>>consultants)
 - Consultant-level variation expected
 - Network level variation unlikely to be reflecting variation in patient choice



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Conclusions

- Nation-wide examination of variation in orthotopic reconstruction warranted
- We need the creation of OPCS-4 codes that identify type of reconstruction after cystectomy

Gratefully acknowledge the use of BAUS data / BAUS Cancer Registry for this work



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Thank you for your attention!

