

Norfolk and Norwich University Hospitals NHS Foundation Trust

EAST OF ENGLAND N54

The Norfolk and Norwich University Hospitals NHS Foundation Trust incorporates Norfolk & Norwich University Hospital <http://www.nnuh.nhs.uk/> <<http://www.nnuh.nhs.uk/>>

## Patient inclusion and data sources

The majority of these results are for patients in England and Wales diagnosed with bowel cancer 1 Apr 2014 – 31 Mar 2015. The exceptions are for 2-year mortality and 18-month stoma rate. Two-year mortality estimates include patients undergoing a major resection between 1 April 2012 and 31 March 2013. 18-month stoma rates include rectal cancer patients undergoing a major resection between 1 April 2012 and 31 March 2015. The Audit dataset is linked to Hospital Episode Statistics (HES) at the patient level to obtain further information on patient care and follow-up such as stoma reversal and emergency readmissions in England, and to the National Radiotherapy Dataset (RTDS) for information on radiotherapy treatment in England.

## Data Quality

### Data completeness

% of relevant patient group with useable value of data item.

### Case ascertainment

Number of patients reported to the Audit as a percentage of the number of patients admitted for the first time to the trust/network with a diagnosis of bowel cancer within the audit period according to HES. This can be larger than 100 if more patients are reported to the Audit than identified in HES.

### 7 audit items for risk-adjustment

The per cent of patients with complete data items on all of age, sex, ASA grade, pathological T-stage, pathological N-stage, distant metastases and site of cancer.

## Management of all patients

### No major resection: too little cancer

Those undergoing a local resection of polypectomy.

### No major resection: too much cancer

No excision and reason for no treatment includes advanced stage cancer OR no excision and non-curative intent and metastatic disease.

### No major resection: too frail

not in too much cancer group AND no excision and reason for no treatment includes significant co-morbidity OR no excision and performance status 3 or 4.

## No major resection: unknown/other reason:

no excision and does not meet any of the above criteria.

## Compare trust outcomes

Funnel plots display trust risk-adjusted outcomes for 90-day mortality, 30-day unplanned readmission, 2-year mortality and, for rectal cancer patients, 18-month stoma rate. The funnel regions represent the 95 per cent limit and the 99.8 per cent limit for trusts compared to the national average. Those trusts with results outside the outer (99.8 per cent) limit are considered potential outliers.

Risk adjustment is performed using the seven items listed under Data Quality as well as mode of admission (elective/emergency) and number of co-morbidities according to HES, and an interaction between age and distant metastases. Missing values are imputed using Multiple Imputation. The model for two-year mortality additionally includes interactions between follow-up time (0-3 months after surgery vs. 3-24 months after surgery) and all of the risk factors.

A stoma is considered to be reversed if a HES record with relevant code is identified with 18 months of the initial surgical procedure.

See [FAQs <https://www.nboca.org.uk/about/faq/>](https://www.nboca.org.uk/about/faq/) for more details.

## Data Quality

All Patients:	Trust	Network	National
Number of patients in Audit	450	3150	28013
Case ascertainment (%)	109	97	93
Data completeness of:			
– Pre-treatment TNM (%)	54	54	71
– Performance status (%)	90	64	77

Patients having major resection:	Trust	Network	National
Number of patients in Audit	252	1907	18809
ASA grade 1 (%)	8	10	14
ASA grade 2 (%)	68	53	53
ASA grade 3 (%)	21	24	25
ASA grade 4+ (%)	2	3	3
ASA grade not recorded (%)	N/A	9	5
Data completeness of:			
7 Audit items for risk-adjustment (%)	73	70	82

**Key:**



## Management of all patients

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All Patients:	Trust	Network	National
Number of patients in Audit	450	3150	30122
Seen by Clinical Nurse Specialist (%)	73	87	92

## Management of patients having major resection

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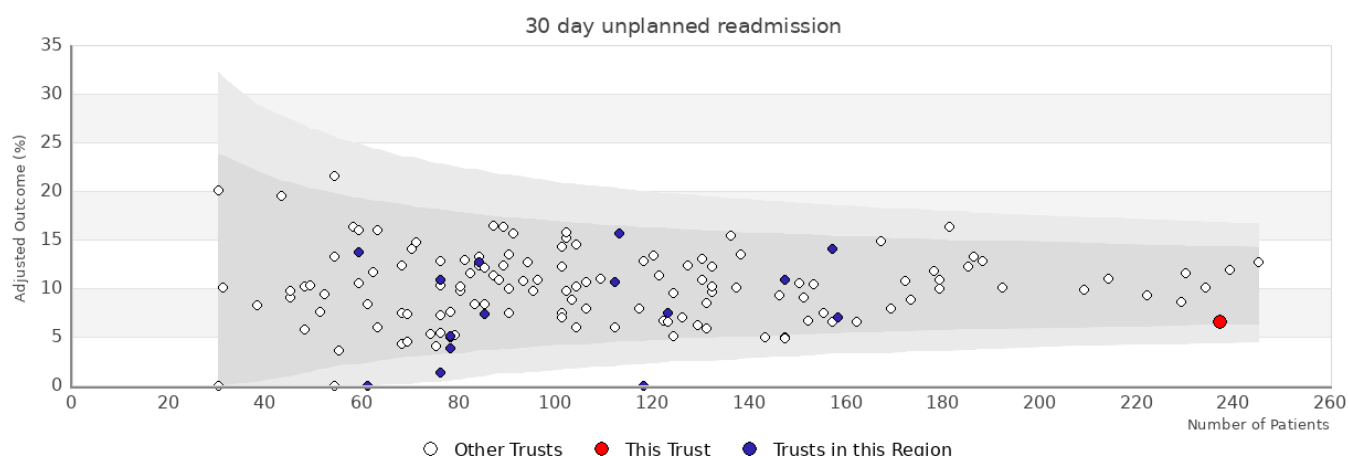
Patients having major resection:	Trust	Network	National
Number of patients in Audit	252	1907	18809
Distant metastases (%)	12	10	9
Urgent or emergency surgery (%)	11	17	16
Median number of lymph nodes excised	16	16	17
Laparoscopic surgery attempted (%)	37	59	61
Length of stay > 5 days (%)	70	71	69

## Rectal cancer patients

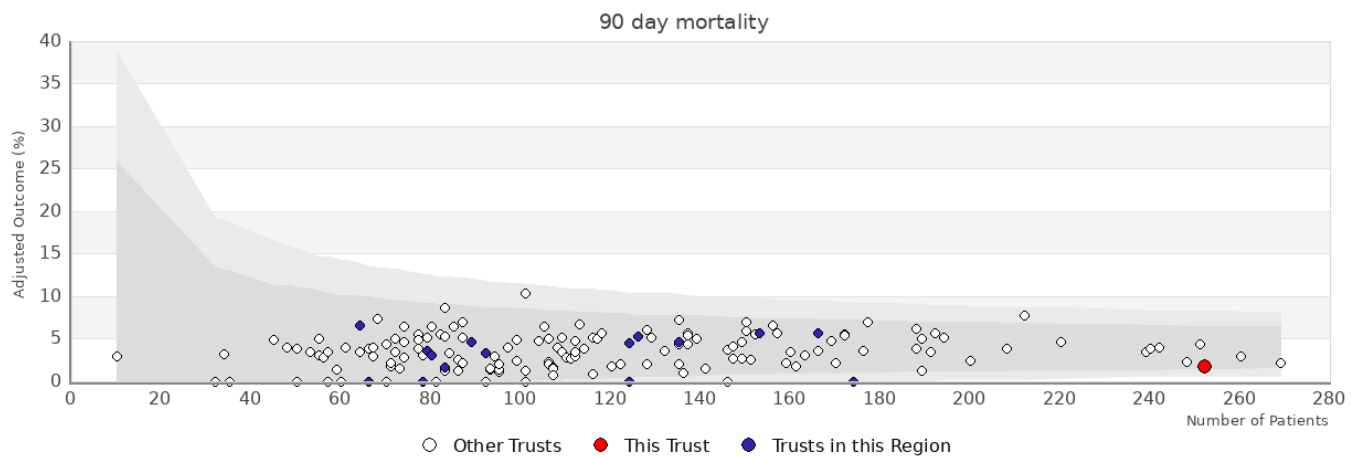
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Patients having major resection:	Trust	Network	National
Number of patients in Audit	76	483	4769
Neoadjuvant therapy (%)	20	26	37
Circumferential resection margin: Recorded (%)	18	28	25
Circumferential resection margin: Positive (%)	5	8	7
Rectal volume	N/A	N/A	N/A

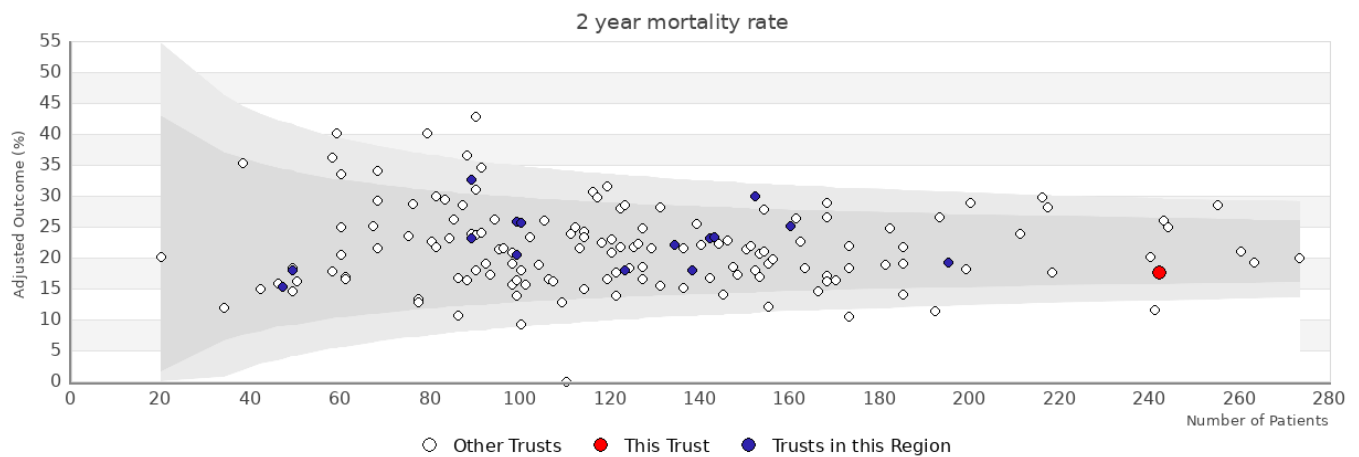
Patients in APER/Hartmanns estimate:	Trust	Network	National
Number of patients in APER/Hartmanns estimate	N/A	N/A	N/A
APER/Hartmanns (%)	N/A	N/A	N/A



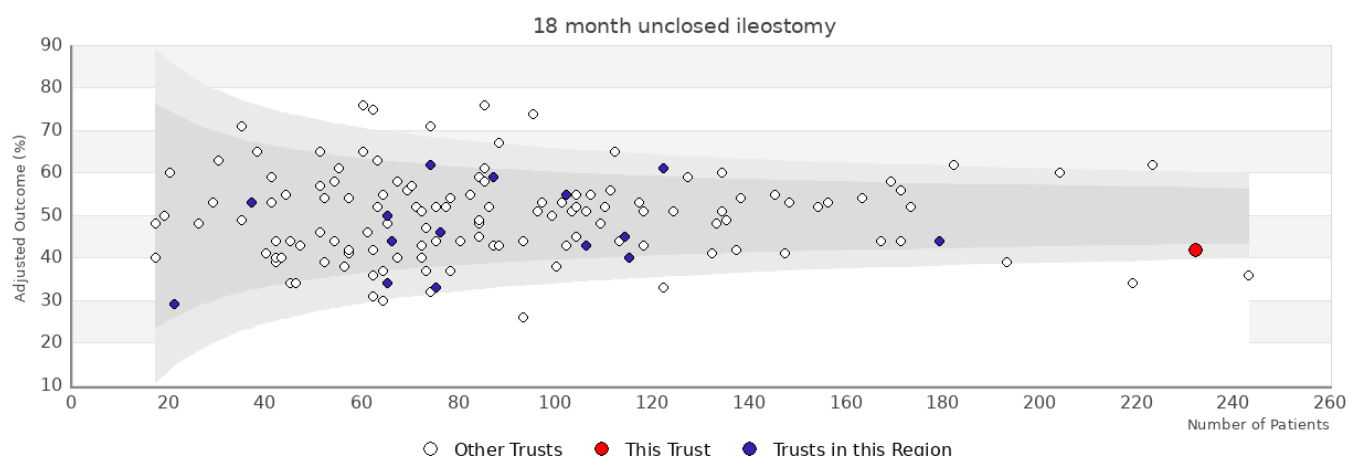
Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	237	6.6%	6.8%
Other trusts within the region: EAST OF ENGLAND			
Basildon and Thurrock University Hospitals NHS Foundation Trust	123	7.4%	7.3%
Bedford Hospital NHS Trust	78	3.8%	3.8%
Cambridge University Hospitals NHS Foundation Trust	158	7%	7%
East and North Hertfordshire NHS Trust	76	10.9%	10.5%
Hinchingbrooke Health Care NHS Trust	59	13.7%	13.6%
Ipswich Hospital NHS Trust	157	14.1%	13.4%
James Paget University Hospitals NHS Foundation Trust	78	5.1%	5.1%
Luton and Dunstable University Hospital NHS Foundation Trust	84	12.7%	13.1%
Mid Essex Hospital Services NHS Trust	76	1.3%	1.3%
Peterborough and Stamford Hospitals NHS Foundation Trust	113	15.7%	15%
Southend University Hospital NHS Foundation Trust	112	10.6%	9.8%
West Hertfordshire Hospitals NHS Trust	147	10.9%	10.9%
West Suffolk NHS Foundation Trust	85	7.3%	7.1%



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	252	1.8%	1.6%
Other trusts within the region: EAST OF ENGLAND			
Basildon and Thurrock University Hospitals NHS Foundation Trust	135	4.6%	5.2%
East and North Hertfordshire NHS Trust	80	3%	2.5%
Hinchingbrooke Health Care NHS Trust	64	6.6%	6.3%
Ipswich Hospital NHS Trust	166	5.7%	7.2%
James Paget University Hospitals NHS Foundation Trust	79	3.6%	5.1%
Luton and Dunstable University Hospital NHS Foundation Trust	92	3.3%	3.3%
Mid Essex Hospital Services NHS Trust	83	1.6%	1.2%
Peterborough and Stamford Hospitals NHS Foundation Trust	124	4.5%	5.6%
Southend University Hospital NHS Foundation Trust	126	5.3%	4%
West Hertfordshire Hospitals NHS Trust	153	5.6%	6.5%
West Suffolk NHS Foundation Trust	89	4.6%	5.6%



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	242	17.7%	14.2%
Other trusts within the region: EAST OF ENGLAND			
Basildon and Thurrock University Hospitals NHS Foundation Trust	89	32.7%	29.5%
Bedford Hospital NHS Trust	89	23.1%	19.4%
Cambridge University Hospitals NHS Foundation Trust	195	19.3%	22.6%
Colchester Hospital University NHS Foundation Trust	160	25.2%	20.1%
East and North Hertfordshire NHS Trust	138	17.9%	18.5%
Hinchingbrooke Health Care NHS Trust	47	15.3%	24.3%
Ipswich Hospital NHS Trust	152	29.9%	25.1%
James Paget University Hospitals NHS Foundation Trust	100	25.6%	32.9%
Luton and Dunstable University Hospital NHS Foundation Trust	49	18%	23.7%
Mid Essex Hospital Services NHS Trust	99	20.4%	16.4%
Peterborough and Stamford Hospitals NHS Foundation Trust	143	23.3%	18.7%
Southend University Hospital NHS Foundation Trust	134	22.1%	25%
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	99	25.8%	22.8%
West Hertfordshire Hospitals NHS Trust	142	23.1%	26.5%
West Suffolk NHS Foundation Trust	123	18%	24.9%



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	232	42%	43%
Other trusts within the region: EAST OF ENGLAND			
Basildon and Thurrock University Hospitals NHS Foundation Trust	76	46%	46%
Bedford Hospital NHS Trust	66	44%	44%
Cambridge University Hospitals NHS Foundation Trust	179	44%	45%
Colchester Hospital University NHS Foundation Trust	115	40%	39%
East and North Hertfordshire NHS Trust	87	59%	57%
Hinchingbrooke Health Care NHS Trust	21	29%	29%
Ipswich Hospital NHS Trust	106	43%	43%
James Paget University Hospitals NHS Foundation Trust	65	50%	54%
Luton and Dunstable University Hospital NHS Foundation Trust	37	53%	59%
Mid Essex Hospital Services NHS Trust	75	33%	32%
Peterborough and Stamford Hospitals NHS Foundation Trust	122	61%	64%
Southend University Hospital NHS Foundation Trust	102	55%	56%
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	74	62%	66%
West Hertfordshire Hospitals NHS Trust	114	45%	46%
West Suffolk NHS Foundation Trust	65	34%	35%