

Norfolk and Norwich University Hospitals NHS Foundation Trust

East of England A03

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 2016 – 31 Mar 2017. 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 2014 and 31 March 2015. 18-month stoma rates include rectal cancer patients undergoing a major resection between 1 April 2013 and 31 March 2016.

The Audit dataset is linked to Hospital Episode Statistics (HES) and Patient Episode Database for Wales (PEDW) at the patient level to obtain further information on patient care and follow-up such as stoma reversal and emergency readmissions in England/Wales. The dataset also links to Office of National Statistics records. These provide information about date, place and cause of death.

NBOCA also links to the National Radiotherapy Dataset (RTDS) for information on radiotherapy treatment in England, and the Systemic Anti-Cancer Therapy database (SACT) for information on chemotherapy treatment in England. In addition, the audit linked to the National Emergency Laparotomy Audit (NELA) for the first time this year. This provides information on emergency bowel cancer operations.

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/PEDW. This can be larger than 100 if more patients are reported to the Audit than identified in HES/PEDW.

Data completeness

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

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.

ASA grade

% of patients recorded as having a major resection who have a particular ASA grade recorded, or no ASA recorded.

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.

Management of patients having major resection

At least 12 lymph nodes excised (%)

% of colon cancer patients undergoing major resection with a recorded number of lymph nodes, who had at least 12 lymph nodes examined.

Rectal cancer patients

Neo-adjuvant therapy (%)

% of rectal cancer patients having short- or long-course radiotherapy prior to major resection.

Circumferential resection margin: Negative (%)

% of rectal cancer patients undergoing major resection whose CRM is reported to be negative.

Circumferential resection margin: Present (%)

% of rectal cancer patients undergoing a major resection who have a recorded CRM.

APER rate (%)

% of patients with rectal cancer undergoing abdominoperineal excision of the rectum and therefore having a permanent stoma.

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/PEDW, 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/PEDW record with relevant code is identified within 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	432	3496	30541
Case ascertainment (%)	95	97	93
Data completeness of:			
– Pre-treatment TNM (%)	63	62	78
– Performance status (%)	95	88	85

Patients having major resection:	Trust	Network	National
Number of patients in Audit	259	2168	19183
ASA grade 1 (%)	7	11	12
ASA grade 2 (%)	57	56	52
ASA grade 3 (%)	34	29	27
ASA grade 4+ (%)	1	2	2
ASA grade not recorded (%)	1	2	7
Data completeness of:			
7 Audit items for risk-adjustment (%)	94	79	83

Key:

	> 80%
	50 - 80%
	< 50%

Management of all patients

All Patients:	Trust	Network	National
Number of patients in Audit	432	3496	30424
Seen by Clinical Nurse Specialist (%)	77	90	93

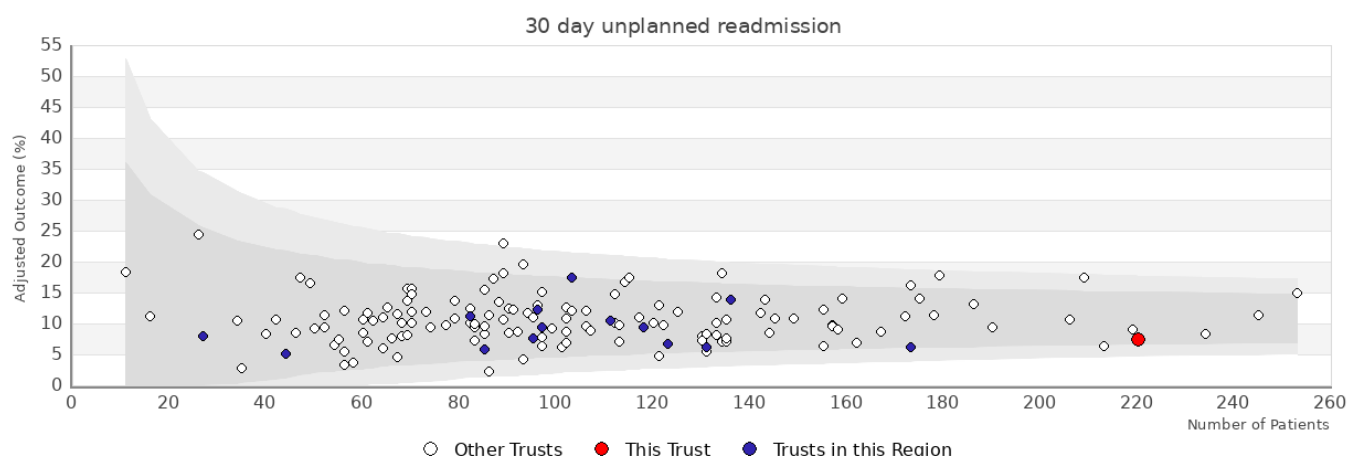
Management of patients having major resection

Patients having major resection:	Trust	Network	National
Number of patients in Audit	259	2168	19222
Distant metastases (%)	4	7	8
Urgent or emergency surgery (%)	1	14	17
At least 12 lymph nodes excised (%)	86	88	87
Laparoscopic surgery attempted (%)	63	69	66
Risk-adjusted length of stay > 5 days (%)	69	67	64

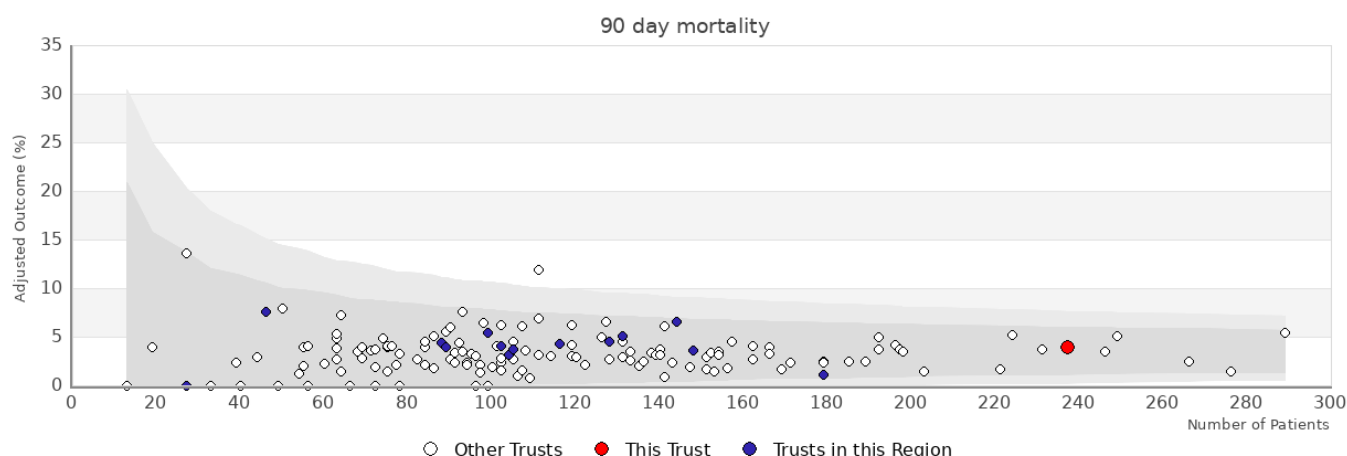
Rectal cancer patients

Patients having major resection:	Trust	Network	National
Number of patients in Audit	64	484	4503
Neoadjuvant therapy (%)	25	30	36
Circumferential resection margin: Present (%)	95	87	84
Circumferential resection margin: Negative (%)	94	81	77
Rectal volume	N/A	N/A	N/A

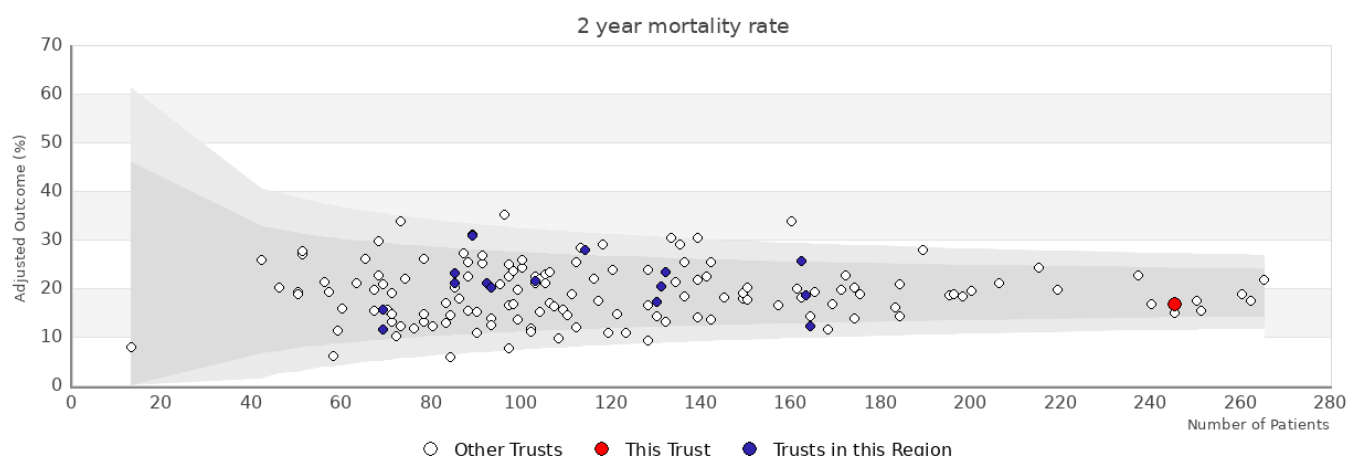
Patients in APER/Hartmanns estimate:	Trust	Network	National
Number of patients in APER/Hartmanns estimate	N/A	N/A	N/A
APER/Hartmanns (%)	N/A	N/A	N/A



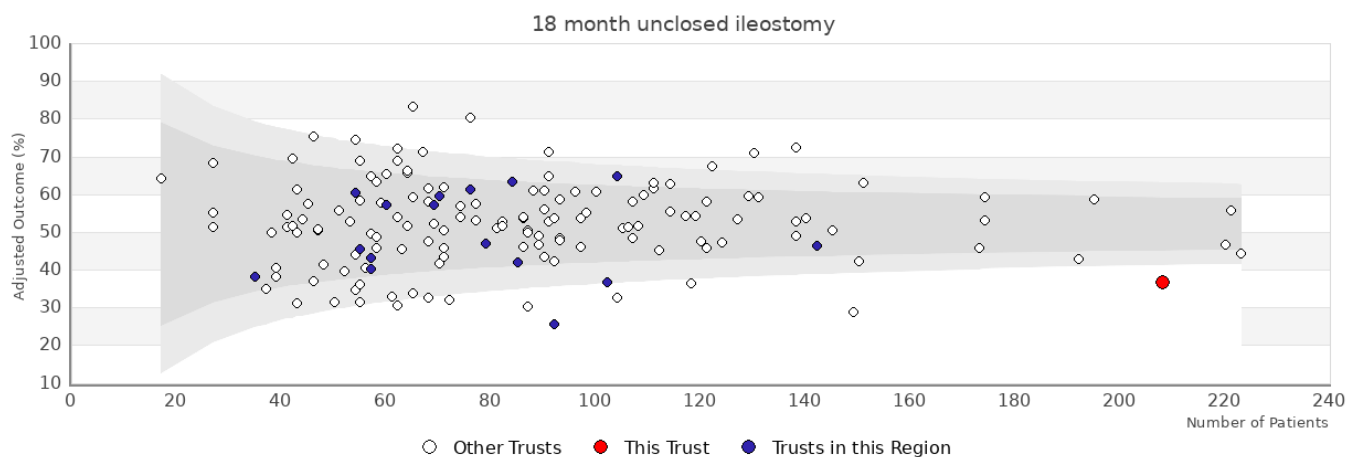
Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	220	7.4%	7.3%
Other trusts within the region: East of England			
Basildon and Thurrock University Hospitals NHS Foundation Trust	96	12.3%	12.5%
Bedford Hospital NHS Trust	82	11.2%	11%
Cambridge University Hospitals NHS Foundation Trust	173	6.2%	6.4%
East Suffolk and North Essex NHS Foundation Trust - Colchester Hospital	136	13.9%	13.2%
East Suffolk and North Essex NHS Foundation Trust - Ipswich Hospital	131	6.2%	6.1%
James Paget University Hospitals NHS Foundation Trust	95	7.7%	7.4%
Luton and Dunstable University Hospital NHS Foundation Trust	111	10.5%	9.9%
Mid Essex Hospital Services NHS Trust	27	8%	7.4%
Milton Keynes Hospital NHS Foundation Trust	85	5.8%	5.9%
North West Anglia NHS Foundation Trust	123	6.7%	6.5%
Southend University Hospital NHS Foundation Trust	97	9.4%	9.3%
The Princess Alexandra Hospital NHS Trust	44	5%	4.6%
West Hertfordshire Hospitals NHS Trust	118	9.3%	9.3%
West Suffolk NHS Foundation Trust	103	17.4%	17.5%



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	237	3.9%	3.4%
Other trusts within the region: East of England			
Basildon and Thurrock University Hospitals NHS Foundation Trust	105	3.7%	2.9%
Bedford Hospital NHS Trust	89	3.9%	3.4%
Cambridge University Hospitals NHS Foundation Trust	179	1.1%	1.1%
East Suffolk and North Essex NHS Foundation Trust - Colchester Hospital	144	6.5%	5.6%
East Suffolk and North Essex NHS Foundation Trust - Ipswich Hospital	148	3.6%	4.7%
James Paget University Hospitals NHS Foundation Trust	99	5.5%	9.1%
Luton and Dunstable University Hospital NHS Foundation Trust	116	4.2%	4.3%
Milton Keynes Hospital NHS Foundation Trust	88	4.4%	3.4%
North West Anglia NHS Foundation Trust	131	5.1%	3.8%
Southend University Hospital NHS Foundation Trust	102	4%	3.9%
The Princess Alexandra Hospital NHS Trust	46	7.6%	8.7%
West Hertfordshire Hospitals NHS Trust	128	4.6%	3.9%
West Suffolk NHS Foundation Trust	104	3.1%	2.9%



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	245	16.6%	13.7%
Other trusts within the region: East of England			
Basildon and Thurrock University Hospitals NHS Foundation Trust	131	20.3%	20.5%
Bedford Hospital NHS Trust	85	23.2%	20.1%
Cambridge University Hospitals NHS Foundation Trust	164	12.1%	11.4%
East Suffolk and North Essex NHS Foundation Trust - Colchester Hospital	130	17.3%	15.9%
East and North Hertfordshire NHS Trust	85	21%	16.5%
East Suffolk and North Essex NHS Foundation Trust - Ipswich Hospital	162	25.7%	33%
James Paget University Hospitals NHS Foundation Trust	69	15.5%	21.6%
Luton and Dunstable University Hospital NHS Foundation Trust	93	20.1%	20.3%
Mid Essex Hospital Services NHS Trust	103	21.4%	18.2%
Milton Keynes Hospital NHS Foundation Trust	92	21%	18.3%
North West Anglia NHS Foundation Trust	114	27.8%	36.4%
Southend University Hospital NHS Foundation Trust	132	23.4%	19.9%
The Princess Alexandra Hospital NHS Trust	69	11.5%	15.5%
West Hertfordshire Hospitals NHS Trust	163	18.6%	18.6%
West Suffolk NHS Foundation Trust	89	30.8%	28.7%



Trust	Number	Adjusted	Observed
Norfolk and Norwich University Hospitals NHS Foundation Trust	208	36.9%	36.1%
Other trusts within the region: East of England			
Basildon and Thurrock University Hospitals NHS Foundation Trust	84	63.4%	65.5%
Bedford Hospital NHS Trust	69	57.4%	56.5%
Cambridge University Hospitals NHS Foundation Trust	142	46.4%	48.6%
East Suffolk and North Essex NHS Foundation Trust - Colchester Hospital	102	36.8%	36.3%
East and North Hertfordshire NHS Trust	60	57.2%	56.7%
East Suffolk and North Essex NHS Foundation Trust - Ipswich Hospital	92	25.8%	27.2%
James Paget University Hospitals NHS Foundation Trust	55	45.5%	50.9%
Luton and Dunstable University Hospital NHS Foundation Trust	76	61.4%	63.2%
Mid Essex Hospital Services NHS Trust	57	43.2%	42.1%
Milton Keynes Hospital NHS Foundation Trust	79	47.2%	48.1%
North West Anglia NHS Foundation Trust	104	64.9%	66.4%
Southend University Hospital NHS Foundation Trust	70	59.6%	58.6%
The Princess Alexandra Hospital NHS Trust	35	38.3%	40%
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust	54	60.6%	66.7%
West Hertfordshire Hospitals NHS Trust	85	42%	42.4%
West Suffolk NHS Foundation Trust	57	40.4%	43.9%