

## Nottingham University Hospitals NHS Trust

### East Midlands A02

The Nottingham University Hospitals NHS Trust incorporates Queen's Medical Centre and City Hospital in Nottingham <https://www.nuh.nhs.uk/> <<https://www.nuh.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

<b>All Patients:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	442	2005	30541
Case ascertainment (%)	69	87	93
Data completeness of:			
– Pre-treatment TNM (%)	82	63	78
– Performance status (%)	100	78	85

<b>Patients having major resection:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	258	1249	19183
ASA grade 1 (%)	5	11	12
ASA grade 2 (%)	61	56	52
ASA grade 3 (%)	32	27	27
ASA grade 4+ (%)	2	2	2
ASA grade not recorded (%)	N/A	4	7
Data completeness of:			
7 Audit items for risk-adjustment (%)	100	83	83

### Key:

	> 80%
	50 - 80%
	< 50%

## Management of all patients

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<b>All Patients:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	442	2005	30424
Seen by Clinical Nurse Specialist (%)	93	92	93

## Management of patients having major resection

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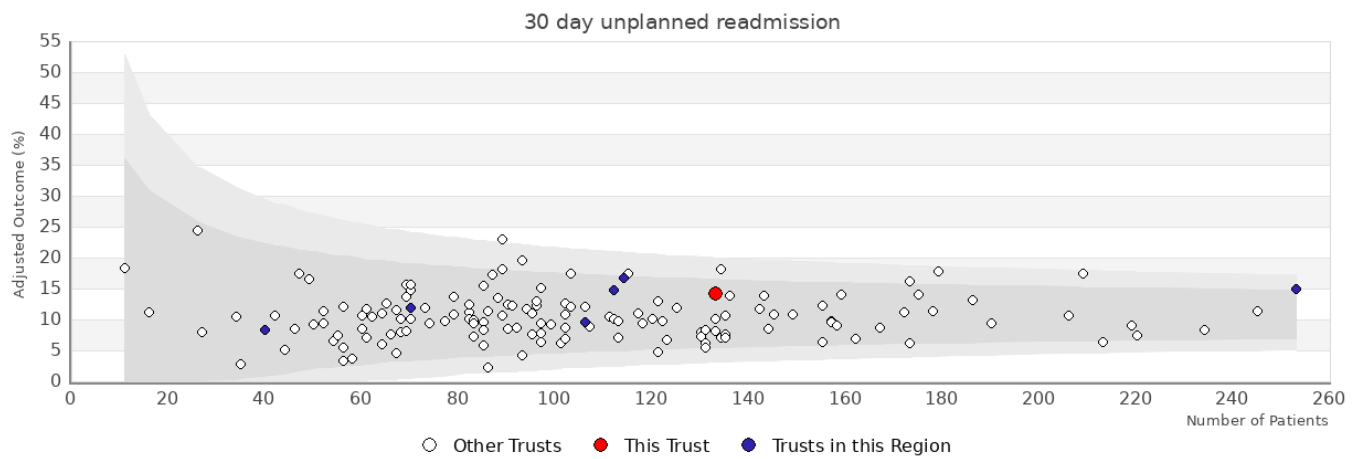
<b>Patients having major resection:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	258	1249	19222
Distant metastases (%)	11	10	8
Urgent or emergency surgery (%)	17	17	17
At least 12 lymph nodes excised (%)	79	83	87
Laparoscopic surgery attempted (%)	74	58	66
Risk-adjusted length of stay > 5 days (%)	56	60	64

## Rectal cancer patients

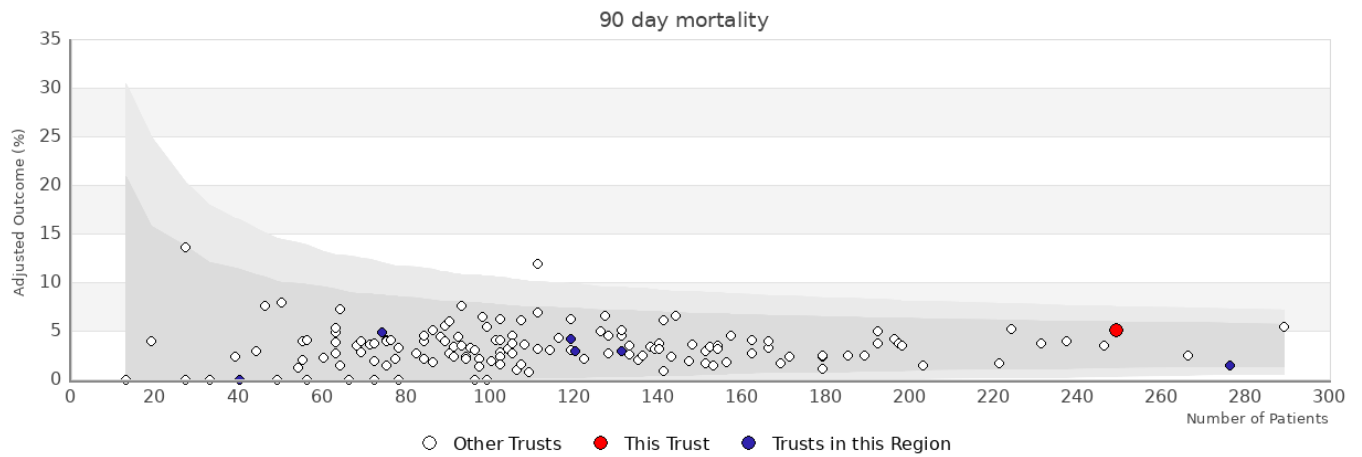
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<b>Patients having major resection:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in Audit	60	330	4503
Neoadjuvant therapy (%)	40	43	36
Circumferential resection margin: Present (%)	100	97	84
Circumferential resection margin: Negative (%)	97	93	77
Rectal volume	N/A	N/A	N/A

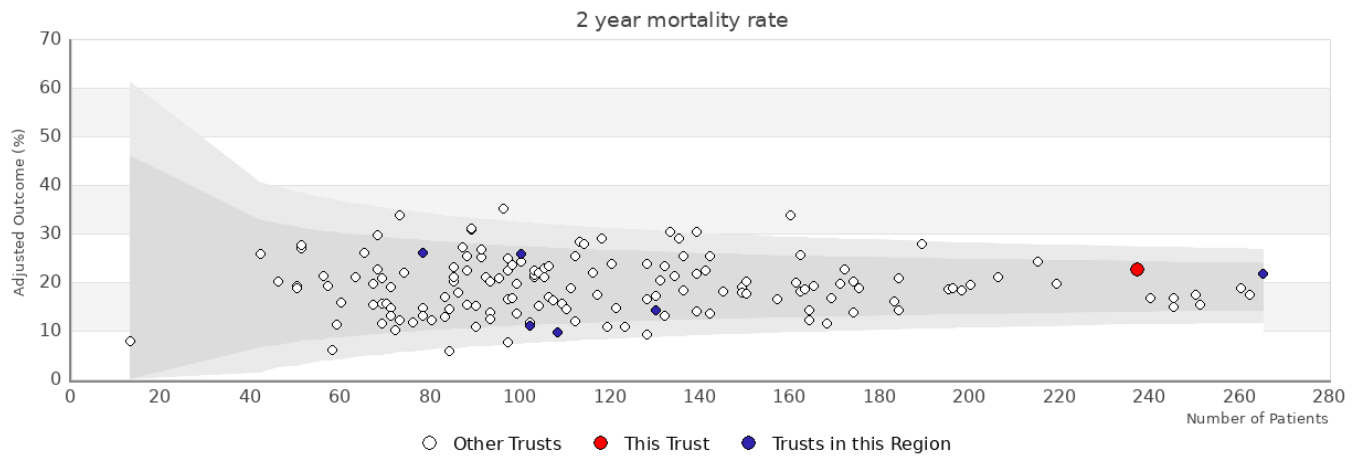
<b>Patients in APER/Hartmanns estimate:</b>	<b>Trust</b>	<b>Network</b>	<b>National</b>
Number of patients in APER/Hartmanns estimate	N/A	N/A	N/A
APER/Hartmanns (%)	N/A	N/A	N/A



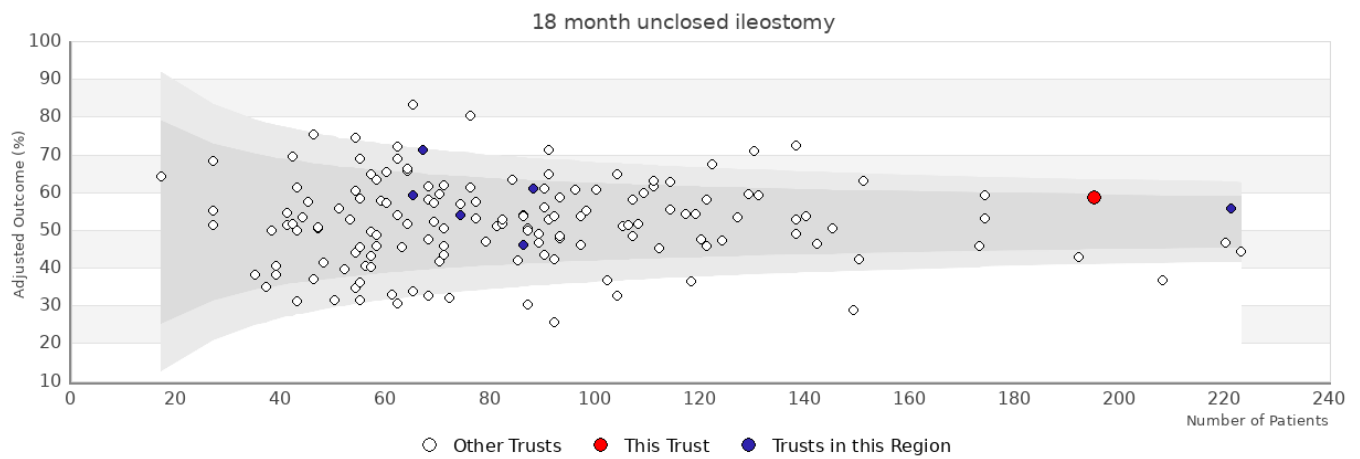
Trust	Number	Adjusted	Observed
Nottingham University Hospitals NHS Trust	133	14.2%	15%
Other trusts within the region: East Midlands			
Kettering General Hospital NHS Foundation Trust	106	9.5%	9.4%
Northampton General Hospital NHS Trust	112	14.7%	15.2%
Sherwood Forest Hospitals NHS Foundation Trust	114	16.7%	16.7%
University Hospitals of Leicester NHS Trust	253	15%	15.8%
United Lincolnshire Hospitals NHS Trust - Lincoln and Grantham	40	8.4%	7.5%
United Lincolnshire Hospitals NHS Trust - Pligrim Hospital Boston	70	11.9%	11.4%



Trust	Number	Adjusted	Observed
Nottingham University Hospitals NHS Trust	249	5.1%	4.8%
Other trusts within the region: East Midlands			
Kettering General Hospital NHS Foundation Trust	131	2.9%	2.3%
Northampton General Hospital NHS Trust	119	4.1%	4.2%
Sherwood Forest Hospitals NHS Foundation Trust	120	3%	2.5%
University Hospitals of Leicester NHS Trust	276	1.4%	1.5%
United Lincolnshire Hospitals NHS Trust - Pligrim Hospital Boston	74	4.8%	8.1%



Trust	Number	Adjusted	Observed
Nottingham University Hospitals NHS Trust	237	22.7%	25.3%
Other trusts within the region: East Midlands			
Kettering General Hospital NHS Foundation Trust	130	14.3%	14.8%
Northampton General Hospital NHS Trust	102	11.1%	10.4%
Sherwood Forest Hospitals NHS Foundation Trust	108	9.8%	8.8%
University Hospitals of Leicester NHS Trust	265	21.8%	19.5%
United Lincolnshire Hospitals NHS Trust - Lincoln and Grantham	100	25.9%	21.5%
United Lincolnshire Hospitals NHS Trust - Pligrim Hospital Boston	78	26.1%	33.9%



Trust	Number	Adjusted	Observed
Nottingham University Hospitals NHS Trust	195	58.7%	58%
Other trusts within the region: East Midlands			
Kettering General Hospital NHS Foundation Trust	88	61%	56.8%
Northampton General Hospital NHS Trust	86	46%	45.4%
Sherwood Forest Hospitals NHS Foundation Trust	74	54%	52.7%
University Hospitals of Leicester NHS Trust	221	55.7%	58.8%
United Lincolnshire Hospitals NHS Trust - Lincoln and Grantham	67	71.5%	70.2%
United Lincolnshire Hospitals NHS Trust - Pligrim Hospital Boston	65	59.3%	63.1%