

## University Hospitals Birmingham NHS Foundation Trust

West Midlands A18

The University Hospitals Birmingham NHS Foundation Trust incorporates Queen Elizabeth Hospital and University Hospital in Birmingham <https://www.uhb.nhs.uk/>  
<<https://www.uhb.nhs.uk/>>

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### 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 | 242   | 2837    | 30541    |
| Case ascertainment (%)      | 105   | 88      | 93       |
| Data completeness of:       |       |         |          |
| – Pre-treatment TNM (%)     | 70    | 80      | 78       |
| – Performance status (%)    | 16    | 84      | 85       |

| Patients having major resection:      | Trust | Network | National |
|---------------------------------------|-------|---------|----------|
| Number of patients in Audit           | 124   | 1814    | 19183    |
| ASA grade 1 (%)                       | 5     | 12      | 12       |
| ASA grade 2 (%)                       | 37    | 50      | 52       |
| ASA grade 3 (%)                       | 29    | 29      | 27       |
| ASA grade 4+ (%)                      | 2     | 3       | 2        |
| ASA grade not recorded (%)            | 27    | 7       | 7        |
| Data completeness of:                 |       |         |          |
| 7 Audit items for risk-adjustment (%) | 1     | 76      | 83       |

### Key:

- > 80%
- 50 - 80%
- < 50%

## Management of all patients

| All Patients:                         | Trust | Network | National |
|---------------------------------------|-------|---------|----------|
| Number of patients in Audit           | 242   | 2837    | 30424    |
| Seen by Clinical Nurse Specialist (%) | 96    | 95      | 93       |

## Management of patients having major resection

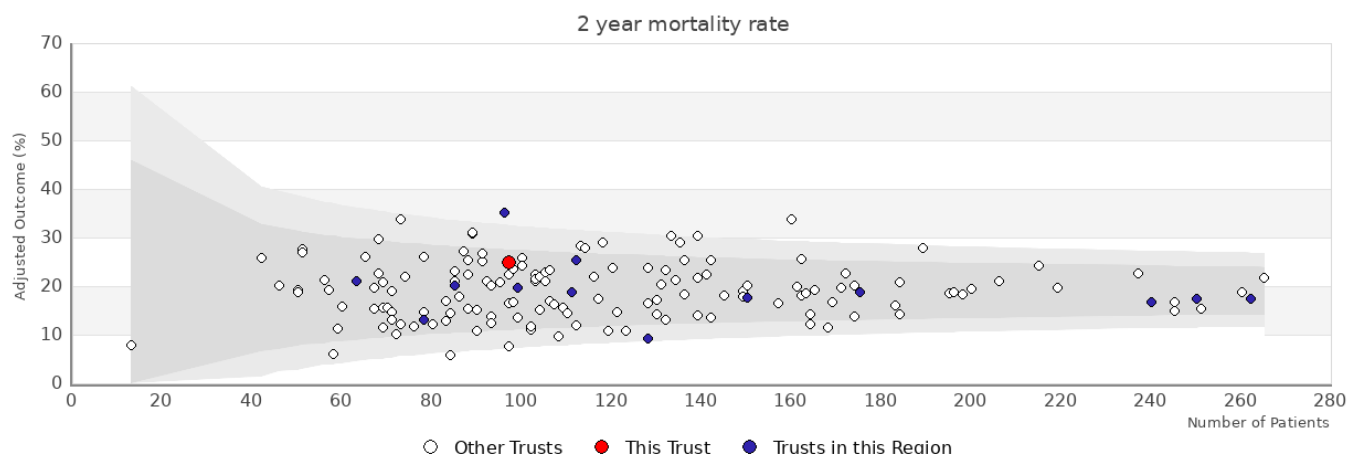
| <b>Patients having major resection:</b>   | <b>Trust</b> | <b>Network</b> | <b>National</b> |
|---|--------------|----------------|-----------------|
| Number of patients in Audit               | 124          | 1814           | 19222           |
| Distant metastases (%)                    | N/A          | 9              | 8               |
| Urgent or emergency surgery (%)           | 32           | 19             | 17              |
| At least 12 lymph nodes excised (%)       | N/A          | 90             | 87              |
| Laparoscopic surgery attempted (%)        | 52           | 69             | 66              |
| Risk-adjusted length of stay > 5 days (%) | N/A          | 59             | 64              |

## Rectal cancer patients

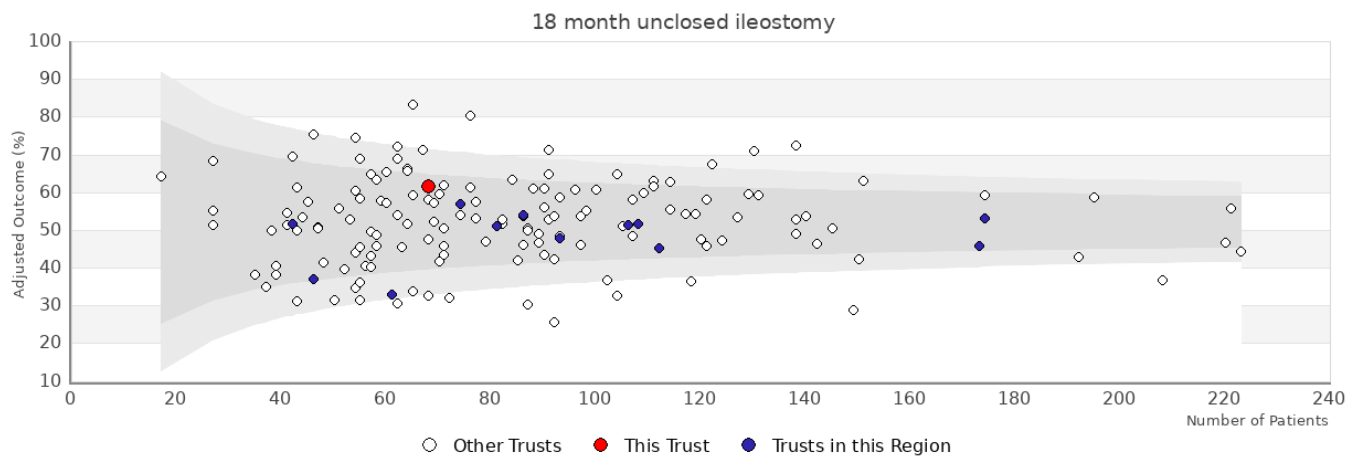
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| <b>Patients having major resection:</b>        | <b>Trust</b> | <b>Network</b> | <b>National</b> |
|--|--------------|----------------|-----------------|
| Number of patients in Audit                    | 32           | 427            | 4503            |
| Neoadjuvant therapy (%)                        | 52           | 31             | 36              |
| Circumferential resection margin: Present (%)  | N/A          | 63             | 84              |
| Circumferential resection margin: Negative (%) | N/A          | 57             | 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 |
|--|--------|----------|----------|
| University Hospitals Birmingham NHS Foundation Trust                                     | 97     | 24.9%    | 18.1%    |
| Other trusts within the region: West Midlands  |        |          |          |
| University Hospitals of Derby and Burton NHS Foundation Trust - Queens Hospital (Burton) | 99     | 19.8%    | 22.7%    |
| George Eliot Hospital NHS Trust  | 63     | 21.1%    | 17.5%    |
| Sandwell and West Birmingham Hospitals NHS Trust   | 111    | 18.8%    | 21.6%    |
| Shrewsbury and Telford Hospital NHS Trust  | 240    | 16.7%    | 17.8%    |
| South Warwickshire NHS Foundation Trust  | 78     | 13%      | 21.8%    |
| The Dudley Group NHS Foundation Trust  | 112    | 25.4%    | 30.4%    |
| The Royal Wolverhampton NHS Trust  | 150    | 17.6%    | 18.3%    |
| University Hospitals Coventry and Warwickshire NHS Trust                                 | 128    | 9.2%     | 10.7%    |
| University Hospitals of North Midlands NHS Trust   | 250    | 17.5%    | 22.6%    |
| Walsall Healthcare NHS Trust   | 85     | 20.2%    | 34.1%    |
| Worcestershire Acute Hospitals NHS Trust   | 262    | 17.5%    | 15.4%    |
| Wye Valley NHS Trust   | 96     | 35.1%    | 33.4%    |
| University Hospitals of Derby and Burton NHS Foundation Trust - Royal Derby Hospital     | 175    | 18.8%    | 18.9%    |



| Trust  | Number | Adjusted | Observed |
|--|--------|----------|----------|
| University Hospitals Birmingham NHS Foundation Trust                                     | 68     | 61.7%    | 57.4%    |
| Other trusts within the region: West Midlands  |        |          |          |
| University Hospitals of Derby and Burton NHS Foundation Trust - Queens Hospital (Burton) | 74     | 56.8%    | 59.5%    |
| George Eliot Hospital NHS Trust  | 42     | 51.6%    | 54.8%    |
| Sandwell and West Birmingham Hospitals NHS Trust   | 93     | 47.8%    | 49.5%    |
| Shrewsbury and Telford Hospital NHS Trust  | 174    | 53%      | 52.9%    |
| South Warwickshire NHS Foundation Trust  | 61     | 32.9%    | 34.4%    |
| The Dudley Group NHS Foundation Trust  | 86     | 54%      | 57%      |
| The Royal Wolverhampton NHS Trust  | 112    | 45.3%    | 49.1%    |
| University Hospitals Coventry and Warwickshire NHS Trust                                 | 106    | 51.5%    | 51.9%    |
| Walsall Healthcare NHS Trust   | 46     | 37%      | 39.1%    |
| Worcestershire Acute Hospitals NHS Trust   | 173    | 45.9%    | 45.7%    |
| Wye Valley NHS Trust   | 81     | 51.1%    | 54.3%    |
| University Hospitals of Derby and Burton NHS Foundation Trust - Royal Derby Hospital     | 108    | 51.8%    | 52.8%    |